

Aquatic invertebrate report for samples collected by South Yuba River Citizen's League

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**Sampling Locations**

Table 1. Sampling site locations

Station	Location	Latitude	Longitude	Elevation (meters)
LYUBAPKSBR-1	Parks Bar Creek, Nevada County, California	39.221	-121.337	
MYUBAMILTON-	Milton Creek, Nevada County, California	39.522	-120.592	
MYUBAORCK-2	Oregon Creek, Nevada County, California	39.396	-121.081	
MYUBAOURHS-2	Our House Creek, Nevada County, California	39.412	-120.994	
NYUBAUNFLT-1	Union Flat Creek, Nevada County, California	39.566	-120.745	
SYUBABRGPT-1	South Yuba River, Bridgeport, Nevada County, California	39.293	-121.198	
SYUBACYNCK -1	Canyon Creek, Nevada County, California	39.361	-120.750	
SYUBAKYRV -1	Kentucky Ravine Creek, Nevada County, California	39.287	-121.195	
SYUBALANGCR-	Langs Crossing Creek, Nevada County, California	39.319	-120.656	
SYUBAPLAV-2	Plavada Creek, Nevada County, California	39.317	-120.441	
SYUBAPOORMN	Poorman Creek, Nevada County, California	39.359	-120.808	

## Methods

### Field sampling

Samples were collected between September 11, 2007 and September 20, 2007 (Table 2). Aquatic invertebrates were collected quantitatively from all riffle habitats with a D-frame kick net with a 500 micron mesh net.

### Laboratory methods

General procedures for processing invertebrate samples were similar to those recommended by the United States Geological Survey (Cuffney et al. 1993) and are described in greater detail and rationalized in Vinson and Hawkins (1996). Samples were sub-sampled if the sample appeared to contain more than 600 organisms. Sub-samples were obtained by pouring the sample into an appropriate diameter 500 micron sieve, floating this material by placing the sieve within an enamel pan partially filled with water and leveling the material within the sieve. The sieve was then removed from the water pan and the material within the sieve was divided into two equal parts. One half of the sieve was then randomly chosen to be processed and the other half set aside. The sieve was then placed back in the enamel pan and the material in the sieve again leveled and split in half. This process was repeated until approximately 600 organisms remained in one-half of the sieve. This material was placed into a Petri dish and all organisms were removed under a dissecting microscope at 10-30 power. Additional sub-samples were taken until at least 600 organisms were removed. All organisms within a sub-sample were removed, and separated into taxonomic Orders. When the sorting of the sub-samples was completed, the entire sample was spread throughout a large white enamel pan and searched for 10 minutes to remove any taxa that might not have been picked up during the initial sample sorting process. The objective of this "big/rare" search was to provide a more complete taxa list by finding rarer taxa that may have been excluded during the sub-sampling process. These rarer bugs were placed into a separate vial and the data entered separately from the bugs removed during the sub-sampling process. All the organisms removed during the sorting process were then identified using appropriate identification keys (see literature cited list for list of taxonomic resources used). Once the data had been entered into a computer and checked, the unsorted portion of the sample was discarded. The identified portion of the sample was placed in a 20 ml glass scintillation vial with polypropylene lids in 70% ethanol, given a catalog number, and retained. In this report, metrics were calculated using data from the sub-sampled and big/rare portions of the sample. Abundance data are presented as the estimated number of individuals per square meter for quantitative samples and the estimated number per sample for qualitative samples.

Table 2. Field comments and laboratory processing information.

Sample	Station	Sampling Date	Habitat Sampled	Sampling Method	Sampling Area Sqmts	% of sample processed	Number of individuals identified	Field Comments
140351	LYUBAPKSBR-	09/19/2007	Riffle	Surber net	0.74	13	607	
140352	SYUBABRGPT-	09/14/2007	Riffle	Surber net	0.74	19	653	
140353	SYUBAKYRV-1	09/12/2007	Riffle	Surber net	0.74	100	122	
140354	MYUBAORCK-	09/11/2007	Riffle	Surber net	0.74	38	618	
140355	MYUBAOURHS	09/18/2007	Riffle	Surber net	0.74	38	645	
140356	SYUBAPOORM	09/13/2007	Riffle	Surber net	0.74	50	741	
140357	SYUBACYNCK-	09/20/2007	Riffle	Surber net	0.74	38	663	
140358	NYUBAUNFLT-	09/20/2007	Riffle	Surber net	0.74	25	681	
140359	SYUBALANGC	09/17/2007	Riffle	Surber net	0.74	25	618	
140360	MYUBAMILTO	09/17/2007	Riffle	Surber net	0.74	13	907	
140361	SYUBAPLAV-2	09/17/2007	Riffle	Surber net	0.74	38	630	

## Data summarization

A number of metrics or ecological summaries can be calculated from an aquatic invertebrate sample. A summary and description of commonly used metrics is available in Barbour et al. (1999, <http://www.epa.gov/owow/monitoring/rbp/index.html#Table%20of%20Contents>) and Karr and Chu (1998). Both of these publications suggest use of the following metrics for assessing the health of aquatic invertebrate assemblages: Total taxa richness, EPT taxa richness, Ephemeroptera taxa richness, Plecoptera taxa richness, Trichoptera taxa richness, % EPT abundance, % Ephemeroptera abundance, % Chironomidae abundance, Intolerant taxa richness, % tolerant organisms, Hilsenhoff Biotic Index, % contribution of the dominant taxon, clinger taxa richness, % clinger abundance, % collector-filterer abundance, and the % scraper abundance. Assessments are best made by comparing samples to samples collected similarly at reference sites or from samples collected prior to impacts or management actions at a location. In this report, the following metrics were calculated for each sample.

**Taxa richness** - Richness is a component and estimate of community structure and stream health based on the number of distinct taxa. Taxa richness normally decreases with decreasing water quality. In some situations organic enrichment can cause an increase in the number of pollution tolerant taxa. Taxa richness was calculated for operational taxonomic units (OTUs) and the number of unique genera, and families. The values for operational taxonomic units may be overestimates of the true taxa richness at a site if individuals were the same taxon as those identified to lower taxonomic levels or they may be underestimates of the true taxa richness if multiple taxa were present within a larger taxonomic grouping but were not identified. All individuals within all samples were generally identified similarly, so that comparisons in operational taxonomic richness among samples within this dataset are appropriate, but comparisons to other data sets may not. Comparisons to other datasets should be made at the genera or family level.

**Abundance** - The abundance, density, or number of aquatic macroinvertebrates per unit area is an indicator of habitat availability and fish food abundance. Abundance may be reduced or increased depending on the type of impact or pollutant. Increased organic enrichment typically causes large increases in abundance of pollution tolerant taxa. High flows, increases in fine sediment, or the presence of toxic substances normally cause a decrease in invertebrate abundance. Invertebrate abundance is presented as the number of individuals per square meter for quantitative samples and the number of individuals collected in each sample for qualitative samples.

**EPT** - A summary of the taxonomic richness and abundance within the insect Orders Ephemeroptera, Plecoptera, and Trichoptera (EPT). These orders are commonly considered sensitive to pollution (Karr and Chu 1998).

**Percent contribution of the dominant family or taxon** - An assemblage largely dominated (>50%) by a single taxon or several taxa from the same family suggests environmental stress. Habitat conditions likely limit the number of taxa that can occur at the site.

**Shannon diversity index** - Ecological diversity is a measure of community structure defined by the relationship between the number of distinct taxa and their relative abundances. The Shannon diversity index was calculated for each sampling location for which there were a sufficient number of individuals and taxa collected to perform the calculations. The calculations were made following Ludwig and Reynolds (1988, equation 8.9, page 92).

**Evenness** - Evenness is a measure of the distribution of taxa within a community. The evenness index used in this report was calculated following Ludwig and Reynolds (1988, equation 8.15, page 94). Value ranges from 0-1 and approach zero as a single taxa becomes more dominant.

**Clinger taxa** - The number of clinger taxa have been found by Karr and Chu (1998) to respond negatively to human disturbance. Clinger taxa were determined using information in Merritt et al. (2008). These taxa typically cling to the tops of rocks and are thought to be reduced by sedimentation or abundant algal growths.

**Long-live taxa** - The number of long-lived taxa was calculated the number of taxa collected that typically have 2-3 year life cycles. Disturbances and water quality and habitat impairment typically reduces the number of long-lived taxa Karr and Chu (1998). Life-cycle length determinations were based on information in Merritt et al. (2008).

**Biotic indices** - Biotic indices use the indicator taxa concept. Taxa are assigned water quality tolerance values based on their tolerance to pollution. Scores are typically weighted by taxa relative abundance. In the United States the most commonly used biotic index is the Hilsenhoff Biotic Index (Hilsenhoff 1987, Hilsenhoff 1988). The USFS and BLM

throughout the western United States have also frequently used the USFS Community Tolerance Quotient.

**Hilsenhoff biotic index** - The Hilsenhoff Biotic Index (HBI) summarizes the overall pollution tolerances of the taxa collected. This index has been used to detect nutrient enrichment, high sediment loads, low dissolved oxygen, and thermal impacts. It is best at detecting organic pollution. Families were assigned an index value from 0- taxa normally found only in high quality unpolluted water, to 10- taxa found only in severely polluted waters. Family level values were taken from Hilsenhoff (1987, 1988) and a family level HBI was calculated for each sampling location for which there were a sufficient number of individuals and taxa collected to perform the calculations. Sampling locations with HBI values of 0-2 are considered clean, 2-4 slightly enriched, 4-7 enriched, and 7-10 polluted. Rather than using mean HBI values for a sample, taxon HBI values can also be used to determine the number of pollution intolerant and tolerant taxa occurring at a site. In this report, taxa with HBI values  $\leq 1$  were considered intolerant clean water taxa and taxa with HBI values  $\geq 9$  were considered pollution tolerant taxa. The number of tolerant and intolerant taxa and the abundances of tolerant and intolerant taxa were calculated for each sampling location.

**USFS community tolerant quotient** - Taxa are assigned a tolerant quotient (TQ) from 2 - taxa found only in high quality unpolluted water, to 108 - taxa found in severely polluted waters. TQ values were developed by Winget and Mangum (1979). The dominance weighted community tolerance quotient (CTQd) was calculated. Values can vary from about 20 to 100, in general the lower the value the better the water quality.

**Functional feeding group measures** - A common classification scheme for aquatic macroinvertebrates is to categorize them by feeding acquisition mechanisms. Categories are based on food particle size and food location, e.g., suspended in the water column, deposited in sediments, leaf litter, or live prey. This classification system reflects the major source of the resource, either within the stream itself or from riparian or upland areas and the primary location, either erosional or depositional habitats. The number of taxa and individuals of the following feeding groups were calculated for each sampling location. Functional feeding group designations were from Merritt et al. (2008).

**Shredders** - Shredders use both living vascular hydrophytes and decomposing vascular plant tissue - coarse particulate organic matter. Shredders are sensitive to changes in riparian vegetation. Shredders can be good indicators of toxicants that adhere to organic matter.

**Scrapers** - Scrapers feed on periphyton - attached algae and associated material. Scraper populations increase with increasing abundance of diatoms and can decrease as filamentous algae, mosses, and vascular plants increase, often in response to increases in nitrogen and phosphorus. Scrapers decrease in relative abundance in response to sedimentation and higher levels of organic pollution or nutrient enrichment.

**Collector-filterers** - Collector-filterers feed on suspended fine particulate organic matter. Collector-filterers are sensitive to toxicants in the water column and to pollutants that adhere to organic matter.

**Collector-gatherers** - Collector-gatherers feed on deposited fine particulate organic matter. Collector-gatherers are sensitive to deposited toxicants.

**Predators** - Predators feed on living animal tissue. Predators typically make up about 25% of the assemblage in stream environments and 50% of the assemblage in still-water environments.

**Unknown feeding group** - This category includes taxa that are highly variable, parasites, and those that for which the primary feeding mode is currently unknown.

## Results

Abundance data and taxa richness are reported as the estimated number of individuals per square meter for quantitative samples and the number per sample for qualitative samples. NC = Not calculated. \* = unable to calculate. EPT = totals for the insect orders, Ephemeroptera, Plecoptera, Trichoptera. QL = qualitative sample.

Sample	Sampling date	Station	Total abundance	EPT abundance	Dominant family	% contribution dominant family
140351	09/19/2007	LYUBAPKSBR-1	6420	3785	Chironomidae	37.43
140352	09/14/2007	SYUBABRGPT-	4566	856	Simuliidae	68.29
140353	09/12/2007	SYUBAKYRV-1	165	50	Simuliidae	39.43
140354	09/11/2007	MYUBAORCK-2	2184	852	Elmidae	39.46
140355	09/18/2007	MYUBAOURHS-	2257	1353	Elmidae	20.43
140356	09/13/2007	SYUBAPOORM	1972	795	Simuliidae	41.18
140357	09/20/2007	SYUBACYNCK-	2367	1107	Simuliidae	19.61
140358	09/20/2007	NYUBAUNFLT-1	3636	2318	Lepidostomatidae	33.00
140359	09/17/2007	SYUBALANGCR	3296	1826	Chironomidae	39.23
140360	09/17/2007	MYUBAMILTON	9569	7668	Heptageniidae	22.76
140361	09/17/2007	SYUBAPLAV-2	2221	902	Simuliidae	41.61
Mean			3513.8	1955.6		36.58

## Diversity indices

Sample	Sampling Date	Station	Total taxa richness	Total genera richness	Total family richness	EPT taxa richness	Shannon diversity index	Evenness
140351	09/19/2007	LYUBAPKSBR-1	22	14	16	14	2.030	0.660
140352	09/14/2007	SYUBABRGPT-	39	28	21	14	1.580	0.430
140353	09/12/2007	SYUBAKYRV-1	24	19	18	11	2.390	0.750
140354	09/11/2007	MYUBAORCK-2	48	30	30	21	3.060	0.790
140355	09/18/2007	MYUBAOURHS-	38	27	22	21	2.960	0.810
140356	09/13/2007	SYUBAPOORM	54	38	29	27	2.580	0.650
140357	09/20/2007	SYUBACYNCK-	61	38	33	36	3.090	0.750
140358	09/20/2007	NYUBAUNFLT-1	49	34	29	26	2.480	0.640
140359	09/17/2007	SYUBALANGCR	42	25	27	30	2.700	0.720
140360	09/17/2007	MYUBAMILTON	45	28	25	28	3.050	0.800
140361	09/17/2007	SYUBAPLAV-2	34	23	21	22	2.340	0.660
Mean			41.5	27.6	24.6	22.7	2.570	0.700

Genera richness by major taxonomic group.

Sample	Sampling Date	Station	Coleoptera	Diptera	Ephemeroptera	Heteroptera	Megaloptera	Odonata	Plecoptera	Trichoptera	Annelida	Crustacea	Mollusca
140351	09/19/2007	LYUBAPKSBR-	0	4	6	0	0	0	3	5	0	0	1
140352	09/14/2007	SYUBABRGPT-	8	7	7	0	1	5	1	6	1	0	1
140353	09/12/2007	SYUBAKYRV-1	7	2	3	0	0	2	4	4	1	0	1
140354	09/11/2007	MYUBAORCK-	6	9	7	0	1	3	6	8	1	0	1
140355	09/18/2007	MYUBAOURHS	6	6	6	0	0	3	7	8	0	0	1
140356	09/13/2007	SYUBAPOORM	6	13	8	0	1	3	8	11	1	0	0
140357	09/20/2007	SYUBACYNCK	5	11	12	0	2	1	8	16	1	0	0
140358	09/20/2007	NYUBAUNFLT-	7	13	8	0	0	1	7	11	0	0	0
140359	09/17/2007	SYUBALANGC	2	7	7	0	2	0	10	13	0	0	1
140360	09/17/2007	MYUBAMILTC	2	10	10	0	2	0	8	10	0	0	0
140361	09/17/2007	SYUBAPLAV-2	4	6	8	0	0	0	6	8	0	0	0
Mean			4.8	8.0	7.5	0.0	0.8	1.6	6.2	9.1	0.5	0.0	0.5

Total abundance by major taxonomic group.

Sample	Sampling Date	Station	Coleoptera	Diptera	Ephemeroptera	Heteroptera	Megaloptera	Odonata	Plecoptera	Trichoptera	Annelida	Crustacea	Mollusca
140351	09/19/2007	LYUBAPKSBR-1	0	2461	2835	0	0	0	112	838	0	0	43
140352	09/14/2007	SYUBABRGPT-1	303	3283	368	0	0	95	9	480	7	0	0
140353	09/12/2007	SYUBAKYRV-1	23	69	5	0	0	19	20	24	3	0	1
140354	09/11/2007	MYUBAORCK-2	873	245	108	0	5	22	227	518	11	0	7
140355	09/18/2007	MYUBAOURHS-2	614	243	777	0	0	34	169	407	0	0	6
140356	09/13/2007	SYUBAPOORM-N-1	132	931	153	0	3	19	174	468	16	0	0
140357	09/20/2007	SYUBACYNCK-1	231	945	490	0	9	11	164	453	0	0	0
140358	09/20/2007	NYUBAUNFLT-1	124	1141	589	0	0	5	196	1532	0	0	0
140359	09/17/2007	SYUBALANGC-R-2	59	1386	553	0	16	0	843	430	0	0	8
140360	09/17/2007	MYUBAMILTC-N-1	86	1480	4346	0	0	0	1876	1446	0	0	0
140361	09/17/2007	SYUBAPLAV-2	207	1068	249	0	0	0	105	548	0	0	0
Mean			241.1	1204.7	952.1	0.0	3.0	18.6	354.1	649.5	3.4	0.0	5.9

## Biotic Indices

Sample	Sampling date	Station	Hilsenhoff Biotic Index		USFS Community CTQd
			Index	Indication	
140351	09/19/2007	LYUBAPKSBR-1	4.20	Possible slight organic pollution	73
140352	09/14/2007	SYUBABRGPT-	5.55	Fairly significant organic pollution	90
140353	09/12/2007	SYUBAKYRV -1	5.25	Some organic pollution	79
140354	09/11/2007	MYUBAORCK-2	4.45	Possible slight organic pollution	83
140355	09/18/2007	MYUBAOURHS-	3.90	Possible slight organic pollution	74
140356	09/13/2007	SYUBAPOORM	4.68	Some organic pollution	67
140357	09/20/2007	SYUBACYNCK -	4.35	Possible slight organic pollution	69
140358	09/20/2007	NYUBAUNFLT-1	3.50	Possible slight organic pollution	63
140359	09/17/2007	SYUBALANGCR	4.01	Possible slight organic pollution	60
140360	09/17/2007	MYUBAMILTON	3.37	No apparent organic pollution	59
140361	09/17/2007	SYUBAPLAV-2	4.50		72
Mean			4.34		71.7

Taxa richness and relative abundance values with respect to tolerance or intolerance to pollution were based on the Hilsenhoff Biotic Index (HBI). Intolerant taxa have HBI score  $\leq 1$ . Tolerant taxa have a HBI score  $\geq 9$ . Data are presented as estimated count per square meter for quantitative samples and total number per sample for qualitative samples.

Sample	Sampling date	Station	Intolerant taxa				Tolerant Taxa			
			Richness	Abundance	Richness	Abundance	Richness	Abundance		
140351	09/19/2007	LYUBAPKSBR	5	(23)	1418	(22)	0	(0)	0	(0)
140352	09/14/2007	SYUBABRGPT	3	(8)	16	(0)	4	(10)	66	(1)
140353	09/12/2007	SYUBAKYRV -	4	(17)	15	(9)	1	(4)	14	(8)
140354	09/11/2007	MYUBAORCK-	9	(19)	200	(9)	2	(4)	14	(1)
140355	09/18/2007	MYUBAOURH	9	(24)	218	(10)	1	(3)	1	(0)
140356	09/13/2007	SYUBAPOOR	16	(30)	334	(17)	2	(4)	11	(1)
140357	09/20/2007	SYUBACYNCK	17	(28)	485	(20)	2	(3)	47	(2)
140358	09/20/2007	NYUBAUNFLT	15	(31)	1547	(43)	0	(0)	0	(0)
140359	09/17/2007	SYUBALANGC	11	(26)	370	(11)	0	(0)	0	(0)
140360	09/17/2007	MYUBAMILTO	14	(31)	1922	(20)	0	(0)	0	(0)
140361	09/17/2007	SYUBAPLAV-2	7	(21)	361	(16)	1	(3)	7	(0)
Mean			10.0	(23)	626.0	(16)	1.2	(3)	14.5	(1)

## Functional feeding groups

Taxa richness by functional feeding group. The percent of the total is shown in parentheses.

Sample	Sampling date	Station	Shredders		Scrapers		Collector-filterers		Collector-gatherers		Predators		Unknown	
140351	09/19/2007	LYUBAPKSBR-	1	(5)	2	(9)	1	(5)	11	(50)	6	(27)	0	(0)
140352	09/14/2007	SYUBABRGPT -	3	(8)	2	(5)	4	(10)	12	(31)	12	(31)	5	(13)
140353	09/12/2007	SYUBAKYRV-1	2	(8)	4	(17)	3	(13)	4	(17)	5	(21)	5	(21)
140354	09/11/2007	MYUBAORCK-	1	(2)	4	(8)	6	(13)	14	(29)	18	(38)	4	(8)
140355	09/18/2007	MYUBAOURHS	3	(8)	3	(8)	5	(13)	10	(26)	13	(34)	3	(8)
140356	09/13/2007	SYUBAPOORM	4	(7)	7	(13)	6	(11)	9	(17)	23	(43)	5	(9)
140357	09/20/2007	SYUBACYNCK	4	(7)	8	(13)	5	(8)	15	(25)	22	(36)	5	(8)
140358	09/20/2007	NYUBAUNFLT-	2	(4)	11	(22)	3	(6)	10	(20)	18	(37)	4	(8)
140359	09/17/2007	SYUBALANGC	7	(17)	4	(10)	4	(10)	9	(21)	14	(33)	3	(7)
140360	09/17/2007	MYUBAMILTC	6	(13)	5	(11)	4	(9)	12	(27)	14	(31)	3	(7)
140361	09/17/2007	SYUBAPLAV-2	2	(6)	6	(18)	4	(12)	10	(29)	8	(24)	3	(9)
Mean			3.2	(8)	5.1	(12)	4.1	(10)	10.5	(27)	13.9	(32)	3.6	(9)

Invertebrate abundance by functional feed group. The percent of the total is shown in parentheses.

Sample	Sampling date	Station	Shredders		Scrapers		Collector-filterers		Collector-gatherers		Predators		Unknown	
140351	09/19/2007	LYUBAPKSBR-	11	(0)	162	(3)	676	(11)	5146	(80)	285	(4)	0	(0)
140352	09/14/2007	SYUBABRGPT -	14	(0)	144	(3)	3453	(76)	526	(12)	183	(4)	151	(3)
140353	09/12/2007	SYUBAKYRV-1	7	(4)	14	(8)	84	(51)	11	(7)	28	(17)	19	(12)
140354	09/11/2007	MYUBAORCK-	7	(0)	482	(22)	404	(18)	465	(21)	442	(20)	315	(14)
140355	09/18/2007	MYUBAOURHS	36	(2)	671	(30)	362	(16)	884	(39)	235	(10)	58	(3)
140356	09/13/2007	SYUBAPOORM	132	(7)	101	(5)	1138	(58)	211	(11)	296	(15)	93	(5)
140357	09/20/2007	SYUBACYNCK	281	(12)	234	(10)	591	(25)	845	(36)	315	(13)	83	(4)
140358	09/20/2007	NYUBAUNFLT-	1259	(35)	450	(12)	943	(26)	611	(17)	276	(8)	86	(2)
140359	09/17/2007	SYUBALANGC	753	(23)	78	(2)	103	(3)	1707	(52)	358	(11)	216	(7)
140360	09/17/2007	MYUBAMILTC	1968	(21)	1841	(19)	945	(10)	3739	(39)	566	(6)	370	(4)
140361	09/17/2007	SYUBAPLAV-2	30	(1)	153	(7)	1293	(58)	425	(19)	139	(6)	159	(7)
Mean			408.9	(10)	393.6	(11)	908.4	(32)	1324.5	(30)	283.9	(10)	140.9	(5)



The 10 metrics thought to be most responsive to human induced disturbance (Karr and Chu 1998).

Sample	Sampling Date	Station	Total taxa	Ephemeroptera taxa	Plecoptera taxa	Trichoptera taxa	Long-lived taxa	Intolerant taxa	Clinger taxa	% tolerant individuals	% contribution dominant taxon	% predators
140351	09/19/2007	LYUBAPKSBR-1	22	4	1	4	1	5	8	0.00	30.19	4.44
140352	09/14/2007	SYUBABRGPT-1	39	5	1	6	16	3	18	1.45	68.29	4.01
140353	09/12/2007	SYUBAKYRV-1	24	3	3	3	11	4	13	8.49	39.43	16.98
140354	09/11/2007	MYUBAORCK-2	48	6	3	6	13	9	22	0.64	20.74	20.24
140355	09/18/2007	MYUBAOURHS-	38	5	4	7	13	9	20	0.04	12.32	10.41
140356	09/13/2007	SYUBAPOORMN	54	7	5	10	14	16	28	0.56	41.18	15.01
140357	09/20/2007	SYUBACYNCK-1	61	9	4	14	11	17	31	1.99	19.61	13.31
140358	09/20/2007	NYUBAUNFLT-1	49	5	5	9	12	15	28	0.00	33.00	7.59
140359	09/17/2007	SYUBALANGCR-	42	4	7	10	5	11	20	0.00	28.25	10.86
140360	09/17/2007	MYUBAMILTON-	45	8	7	8	4	14	20	0.00	11.66	5.91
140361	09/17/2007	SYUBAPLAV-2	34	5	5	5	5	7	18	0.32	41.61	6.26
Mean			41.5	5.5	4.1	7.5	9.5	10.0	20.5	1.23	31.48	10.46

Taxonomic list and counts for 11 samples collected between September 11, 2007 and September 20, 2007. Count is the total number of individuals identified and retained. Samples heading refers to the number of samples contain that taxon.

Order/SubOrder	Family	Subfamily/Genus/Species	Samples	Count
Phylum: Annelida				
Class: Clitellata	SubClass: Oligochaeta		5	12
Phylum: Arthropoda				
Class: Arachnida	SubClass: Acari			
Trombidiformes			2	3
Trombidiformes Prostigmata	Hydryphantidae	Wandesia	1	9
Trombidiformes Prostigmata	Hygrobatidae	Hygrobates	2	4
Trombidiformes Prostigmata	Lebertiidae	Lebertia	4	7
Trombidiformes Prostigmata	Mideopsidae	Mideopsis	2	3
Trombidiformes Prostigmata	Sperchonidae	Sperchon	7	40
Trombidiformes Prostigmata	Torrenticolidae	Torrenticola	6	62
Class: Insecta	SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae		6	81
Coleoptera Polyphaga	Elmidae	Ampumixis dispar	2	7
Coleoptera Polyphaga	Elmidae	Cleptelmis addenda	1	3
Coleoptera Polyphaga	Elmidae	Microcylloepus pusillus	2	10
Coleoptera Polyphaga	Elmidae	Optioservus	8	289
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	7	37
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	8	62
Coleoptera Polyphaga	Elmidae	Zaitzevia	9	127
Coleoptera Polyphaga	Eulichadidae	Stenocolus scutellaris	2	3
Coleoptera Polyphaga	Psephenidae		2	4
Coleoptera Polyphaga	Psephenidae	Eubrianacinae Eubrianax edwardsii	4	22
Coleoptera Polyphaga	Psephenidae	Psepheninae Psephenus	2	47
Diptera			1	1
Diptera Brachycera	Athericidae	Atherix pachypus	1	
Diptera Nematocera	Blephariceridae		2	12
Diptera Nematocera	Blephariceridae	Blepharicerinae Blepharicerini Agathon	1	4
Diptera Nematocera	Blephariceridae	Blepharicerinae Blepharicerini Bibiocephala	1	2
Diptera Nematocera	Ceratopogonidae	Ceratopogoninae Sphaeromiini Probezziia	2	3
Diptera Nematocera	Ceratopogonidae	Forcipomyiinae Atrichopogon	1	1
Diptera Nematocera	Chironomidae		3	11
Diptera Nematocera	Chironomidae	Chironominae	9	217
Diptera Nematocera	Chironomidae	Orthoclaadiinae	11	605
Diptera Nematocera	Chironomidae	Tanypodinae	10	70
Diptera Nematocera	Dixidae	Dixella	1	1
Diptera Brachycera	Empididae	Clinocera	4	6
Diptera Brachycera	Empididae	Hemerodromiinae Hemerodromiini Chelifera	1	1
Diptera Brachycera	Empididae	Neoplasta	3	4
Diptera Nematocera	Psychodidae	Maruina	3	14
Diptera Nematocera	Psychodidae	Pericoma	1	1
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	10	1397
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium tuberosum	1	2
Diptera Brachycera	Tabanidae	Tabanus	1	1
Diptera Nematocera	Tipulidae		3	8
Diptera Nematocera	Tipulidae	Dicranota	3	4

Diptera Nematocera	Tipulidae	Hexatoma	4	12
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	9	42
Diptera Nematocera	Tipulidae	Limoniinae Hexatomini Limnophila	1	3
Diptera Nematocera	Tipulidae	Limoniinae Limonia	1	1
Ephemeroptera Pisciforma	Ameletidae	Ameletus	3	3
Ephemeroptera Pisciforma	Baetidae		2	9
Ephemeroptera Pisciforma	Baetidae	Acentrella	1	5
Ephemeroptera Pisciforma	Baetidae	Baetis	11	460
Ephemeroptera Pisciforma	Baetidae	Callibaetis	1	1
Ephemeroptera Pisciforma	Baetidae	Camelobaetidium warreni	1	1
Ephemeroptera Pisciforma	Baetidae	Centroptilum	3	5
Ephemeroptera Pisciforma	Baetidae	Dipheter hageni	6	13
Ephemeroptera Pisciforma	Baetidae	Fallceon quilleri	1	20
Ephemeroptera Furcatergalia	Ephemerellidae		5	244
Ephemeroptera Furcatergalia	Ephemerellidae	Caudatella	1	1
Ephemeroptera Furcatergalia	Ephemerellidae	Drunella doddsii	2	4
Ephemeroptera Furcatergalia	Ephemerellidae	Drunella spinifera	1	2
Ephemeroptera Furcatergalia	Ephemerellidae	Ephemerella inermis/dorothea	2	16
Ephemeroptera Furcatergalia	Ephemerellidae	Serratella	1	2
Ephemeroptera Setisura	Heptageniidae		9	218
Ephemeroptera Setisura	Heptageniidae	Cinygmula	1	100
Ephemeroptera Setisura	Heptageniidae	Epeorus	9	99
Ephemeroptera Setisura	Heptageniidae	Ironodes	4	9
Ephemeroptera Setisura	Heptageniidae	Rhithrogena	5	50
Ephemeroptera Furcatergalia	Leptohyphidae		1	1
Ephemeroptera Furcatergalia	Leptohyphidae	Tricorythodes	5	48
Ephemeroptera Furcatergalia	Leptophlebiidae		4	22
Ephemeroptera Furcatergalia	Leptophlebiidae	Paraleptophlebia	3	117
Lepidoptera	Pylalidae	Nymphulinae Argyractini Petrophila	1	3
Megaloptera	Corydalidae		3	6
Megaloptera	Corydalidae	Corydalinae Corydalus cornutus	1	
Megaloptera	Corydalidae	Orohermes crepusculus	3	2
Megaloptera	Sialidae	Sialis	2	2
Odonata			1	4
Odonata Zygoptera	Coenagrionidae		3	9
Odonata Zygoptera	Coenagrionidae	Argia	4	19
Odonata Anisoptera	Gomphidae		5	19
Odonata Anisoptera	Gomphidae	Octogomphus specularis	2	1
Odonata Anisoptera	Gomphidae	Ophiogomphus occidentis	1	4
Odonata Anisoptera	Libellulidae		1	1
Odonata Anisoptera	Libellulidae	Brechmorhoga mendax	1	
Plecoptera			1	8
Plecoptera Systellognatha	Chloroperlidae		5	29
Plecoptera Systellognatha	Chloroperlidae	Sweltsa	5	39
Plecoptera Euholognatha	Leuctridae		1	1
Plecoptera Euholognatha	Leuctridae	Moselia infuscata	1	1
Plecoptera Euholognatha	Nemouridae		2	147
Plecoptera Euholognatha	Nemouridae	Malenka	6	58
Plecoptera Euholognatha	Nemouridae	Ostrocerca	1	18
Plecoptera Euholognatha	Nemouridae	Zapada	1	29
Plecoptera Euholognatha	Nemouridae	Zapada cinctipes	4	42
Plecoptera Euholognatha	Nemouridae	Zapada columbiana	1	7
Plecoptera Systellognatha	Peltoperlidae	Yoraperla	2	3
Plecoptera Systellognatha	Perlidae		7	62
Plecoptera Systellognatha	Perlidae	Calineuria californica	10	113
Plecoptera Systellognatha	Perlidae	Hesperoperla pacifica	5	40

Plecoptera Systellognatha	Perlodidae		7	33
Plecoptera Systellognatha	Perlodidae	Oroperla barbara	1	
Plecoptera Systellognatha	Perlodidae	Perlodinae Arcynopterygini Perlinodes aurea	2	7
Plecoptera Systellognatha	Perlodidae	Perlodinae Arcynopterygini Skwala americana	6	31
Trichoptera	Apataniidae	Apatania	1	2
Trichoptera	Brachycentridae	Amiocentrus aspilus	1	17
Trichoptera	Brachycentridae	Micrasema	4	86
Trichoptera	Calamoceratidae	Calamoceratinae Heteroplectron californicum	1	1
Trichoptera	Glossosomatidae		1	20
Trichoptera	Glossosomatidae	Agapetinae Agapetus	2	7
Trichoptera	Glossosomatidae	Glossosomatinae Glossosomatini Glossosoma	4	18
Trichoptera	Helicopsychidae	Helicopsyche borealis	2	3
Trichoptera	Hydropsychidae		7	82
Trichoptera	Hydropsychidae	Arctopsychinae Arctopsyche	2	10
Trichoptera	Hydropsychidae	Arctopsychinae Arctopsyche grandis	1	3
Trichoptera	Hydropsychidae	Hydropsychinae Cheumatopsyche	6	99
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	11	412
Trichoptera	Hydroptilidae		8	72
Trichoptera	Hydroptilidae	Hydroptilinae Hydroptilini Hydroptila	3	19
Trichoptera	Hydroptilidae	Hydroptilinae Ochrotrichiini Ochrotrichia	1	6
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	8	374
Trichoptera	Leptoceridae	Leptocerinae Athripsodini Ceraclea	1	
Trichoptera	Leptoceridae	Leptocerinae Mystacidini Mystacides	1	11
Trichoptera	Limnephilidae		1	1
Trichoptera	Odontoceridae	Marilia flexuosa	2	6
Trichoptera	Philopotamidae	Chimarrinae Chimarra	2	25
Trichoptera	Philopotamidae	Philopotaminae Wormaldia	5	56
Trichoptera	Polycentropodidae	Polycentropodinae Polycentropus	3	5
Trichoptera	Rhyacophilidae	Rhyacophila	5	14
Trichoptera	Rhyacophilidae	Rhyacophila betteni group	6	17
Trichoptera	Rhyacophilidae	Rhyacophila brunnea/vemna group	5	19
Trichoptera	Rhyacophilidae	Rhyacophila coloradensis group	2	2
Trichoptera	Rhyacophilidae	Rhyacophila hyalinata group	2	3
Trichoptera	Sericostomatidae	Gumaga	1	1
Trichoptera	Uenoidae		1	6
Class: Malacostraca	SubClass: Eumalacostraca			
Amphipoda Gammaridea	Gammaridae	Gammarus	1	4
Phylum: Mollusca				
Class: Gastropoda				
Basommatophora	Physidae	Physinae Physa	4	9
Neotaenioglossa	Hydrobiidae	Nymphophilinae	1	3
Neotaenioglossa	Pleuroceridae	Juga	1	1
Phylum: Platyhelminthes				
Class: Turbellaria			1	28

Total: OTU Taxa : **138**

Genera : **104**

Families : **57**

Individuals :

**6885**

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# Taxa Lists for Individual Samples

Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 19, 2007 at station LYUBAPKSBR-1, Parks Bar Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 13% of the collected sample. A total of 607 individuals were removed, identified and retained. The sample identification number is 140351. OTU=operational taxonomic unit. Notes - identification to genus or species was not sported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes			
Phylum: Arthropoda								
Class: Arachnida		SubClass: Acari						
Trombidiformes	Lebertiidae	Lebertia	adult	10.81				
Prostigmata								
Trombidiformes	Sperchonidae	Sperchon	adult	86.49				
Prostigmata								
Class: Insecta		SubClass: Pterygota						
Diptera Nematocera	Chironomidae	Chironominae	larvae	389.19				
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	1937.84				
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	75.68				
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	58.11				
Ephemeroptera	Baetidae	Baetis	larvae	1255.41				
Pisciforma								
Ephemeroptera	Baetidae	Dipheter hageni	larvae	10.81				
Pisciforma								
Ephemeroptera	Ephemerellidae		larvae	1232.43	I			
Furcatergalia								
Ephemeroptera	Ephemerellidae	Ephemerella inermis/dorothea	larvae	152.70				
Furcatergalia								
Ephemeroptera	Heptageniidae		larvae	151.35	I,D			
Setisura								
Ephemeroptera	Heptageniidae	Epeorus	larvae	32.43				
Setisura								
Plecoptera	Perlidae		larvae	10.81	I			
Systellognatha								
Plecoptera	Perlodidae		larvae	10.81	I			
Systellognatha								
Plecoptera	Perlodidae	Perlodinae Arcynopterygini Skwala americana	larvae	90.54				
Systellognatha								
Trichoptera	Glossosomatidae	Glossosomatinae Glossosomatini Glossosoma	larvae	10.81				
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	675.68				
Trichoptera	Hydroptilidae		larvae	140.54	U			
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	larvae	10.81				
Trichoptera	Leptoceridae	Leptocerinae Athripsodini Ceraclea	larvae					
Class: Malacostraca		SubClass: Eumalacostraca						
Amphipoda	Gammaridae	Gammarus	adult	33.78				
Gammaridea								
Phylum: Mollusca								
Class: Gastropoda								
Basommatophora	Physidae	Physinae Physa	adult	43.24				
<hr/>								
Total:	OTU Taxa :	22	Genera :	14	Families :	16	Density :	6420.27
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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 14, 2007 at station SYUBABRGPT-1, South Yuba River, Bridgeport, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 19% of the collected sample. A total of 653 individuals were removed, identified and retained. The sample identification number is 140352. OTU=operational taxonomic unit. Notes - identification to genus or species was not supported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Annelida					
Class: Clitellata		SubClass: Oligochaeta			
			adult	7.21	
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
Trombidiformes	Hygrobatidae	Hygrobates	adult	7.21	
Prostigmata					
Trombidiformes	Torrenticolidae	Torrenticola	adult	14.41	
Prostigmata					
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae		larvae	14.41	I
Coleoptera Polyphaga	Elmidae	Microcylloepus pusillus	adult	32.43	
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	136.94	
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	adult	7.21	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	larvae	7.21	
Coleoptera Polyphaga	Elmidae	Zaitzevia	larvae	32.43	
Coleoptera Polyphaga	Eulichadidae	Stenocolus scutellaris	larvae		
Coleoptera Polyphaga	Psephenidae	Psepheninae Psephenus	larvae	7.21	
Diptera Nematocera	Chironomidae		pupae	7.21	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	93.69	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	43.24	
Diptera Brachycera	Empididae	Clinocera	larvae	7.21	
Diptera Brachycera	Empididae	Neoplasta	larvae	7.21	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	3117.57	
Diptera Nematocera	Tipulidae	Limoniinae Limonia	larvae	7.21	
Ephemeroptera	Baetidae		larvae	14.41	I,D
Pisciforma					
Ephemeroptera	Baetidae	Baetis	larvae	144.14	
Pisciforma					
Ephemeroptera	Baetidae	Camelobaetidius warreni	larvae	7.21	
Pisciforma					
Ephemeroptera	Baetidae	Fallceon quilleri	larvae	144.14	
Pisciforma					
Ephemeroptera	Heptageniidae	Epeorus	larvae	7.21	
Setisura					
Ephemeroptera	Leptohyphidae		larvae	7.21	
Furcatergalia					
Ephemeroptera	Leptohyphidae	Tricorythodes	larvae	43.24	
Furcatergalia					
Megaloptera	Corydalidae	Corydalinae Corydalus cornutus	larvae		
Odonata			larvae	28.83	I
Odonata Zygoptera	Coenagrionidae		larvae	21.62	I
Odonata Zygoptera	Coenagrionidae	Argia	larvae	37.39	
Odonata Anisoptera	Libellulidae		larvae	7.21	I



Odonata Anisoptera	Libellulidae	Brechmorhoga mendax	larvae	
Plecoptera	Perlidae	Calineuria californica	larvae	8.56
Systellognatha				
Trichoptera	Hydropsychidae	Hydropsychinae Cheumatopsyche	larvae	21.62
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	152.70
Trichoptera	Hydroptilidae	Hydroptilinae Hydroptilini Hydroptila	larvae	93.69
Trichoptera	Hydroptilidae	Hydroptilinae Ochrotrichiini Ochrotrichia	larvae	43.24
Trichoptera	Odontoceridae	Marilia flexuosa	larvae	7.21
Trichoptera	Philopotamidae	Chimarrinae Chimarra	larvae	161.26
Phylum: Mollusca				
Class: Gastropoda				
Basommatophora	Physidae	Physinae Physa	adult	

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Total: OTU Taxa : **39**      Genera : **29**      Families : **21**      4565.77

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 12, 2007 at station SYUBAKYRV -1, Kentucky Ravine Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 100% of the collected sample. A total of 122 individuals were removed, identified and retained. The sample identification number is 140353. OTU=operational taxonomic unit. Notes - identification to genus or species was not sported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Annelida					
Class: Clitellata		SubClass: Oligochaeta			
			adult	2.70	
Phylum: Arthropoda					
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae	Cleptelmis addenda	larvae	4.05	
Coleoptera Polyphaga	Elmidae	Microcyloepus pusillus	larvae	1.35	
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	1.35	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	larvae	1.35	
Coleoptera Polyphaga	Elmidae	Zaitzevi a	larvae	1.35	
Coleoptera Polyphaga	Eulichadidae	Stenocolus scutellaris	larvae	4.05	
Coleoptera Polyphaga	Psephenidae	Eubrianacinae Eubrianax edwardsii	larvae	9.46	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	4.05	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	64.86	
Ephemeroptera	Baetidae	Baetis	larvae	2.70	
Pisciforma					
Ephemeroptera	Baetidae	Dipheter hageni	larvae	1.35	
Pisciforma					
Ephemeroptera	Heptageniidae	Ironodes	larvae	1.35	
Setisura					
Odonata Zygoptera	Coenagrionidae	Argia	larvae	13.51	I
Odonata Anisoptera	Gomphidae		larvae	5.41	I
Plecoptera	Chloroperlidae		larvae	4.05	I
Systellognatha					
Plecoptera	Nemouridae	Malenka	larvae	10.81	
Euholognatha					
Plecoptera	Peltoperlidae	Yoraperla	larvae	2.70	
Systellognatha					
Plecoptera	Perlidae	Calineuria californica	larvae	2.70	
Systellognatha					
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	12.16	
Trichoptera	Hydroptilidae		larvae	2.70	I
Trichoptera	Philopotamidae	Philopotaminae Wormaldia	larvae	6.76	
Trichoptera	Rhyacophilidae	Rhyacophila brunnea/vemna group	larvae	2.70	
Phylum: Mollusca					
Class: Gastropoda					
Neotaenioglossa	Pleuroceridae	Juga	adult	1.35	
<hr/>					
Total:	OTU Taxa :	24	Genera :	19	Families :
					18
					164.86
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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 11, 2007 at station MYUBAORCK -2, Oregon Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 38% of the collected sample. A total of 618 individuals were removed, identified and retained. The sample identification number is 140354. OTU=operational taxonomic unit. Notes - identification to genus or species was not supported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Annelida					
Class: Clitellata		SubClass: Oligochaeta		adult	10.81
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
Trombidiformes	Hydryphantidae	Wandesia	adult	32.43	
Prostigmata					
Trombidiformes	Lebertiidae	Lebertia	adult	10.81	
Prostigmata					
Trombidiformes	Mideopsidae	Mideopsis	adult	3.60	
Prostigmata					
Trombidiformes	Sperchonidae	Sperchon	adult	18.02	
Prostigmata					
Trombidiformes	Torrenticolidae	Torrenticola	adult	93.69	
Prostigmata					
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae		larvae	97.30	I
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	453.15	U
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	adult	44.59	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	adult	21.62	
Coleoptera Polyphaga	Elmidae	Zaitzevia	adult	111.71	
Coleoptera Polyphaga	Psephenidae		larvae	10.81	I
Diptera			pupae	3.60	U
Diptera Nematocera	Chironomidae	Chironominae	larvae	100.90	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	75.68	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	14.41	
Diptera Brachycera	Empididae	Clinocera	larvae	7.21	
Diptera Nematocera	Psychodidae	Pericoma	larvae	3.60	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	3.60	
Diptera Nematocera	Tipulidae		larvae	7.21	U
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	29.28	
Ephemeroptera	Baetidae	Baetis	larvae	7.21	
Pisciforma					
Ephemeroptera	Baetidae	Dipheter hageni	larvae	3.60	
Pisciforma					
Ephemeroptera	Ephemerellidae	Ephemerella inermis/dorothea	larvae	3.60	
Furcatergalia					
Ephemeroptera	Heptageniidae		larvae	7.21	D
Setisura					
Ephemeroptera	Heptageniidae	Rhithrogena	larvae	3.60	
Setisura					
Ephemeroptera	Leptohyphidae	Tricorythodes	larvae	50.45	
Furcatergalia					
Ephemeroptera	Leptophlebiidae	Paraleptophlebia	larvae	32.43	
Furcatergalia					
Lepidoptera	Pyrilidae	Nymphulinae Argyractini Petrophila	larvae	5.41	
Megaloptera	Corydalidae		larvae	4.95	I

Odonata Zygoptera	Coenagrionidae		larvae	10.81	I
Odonata Anisoptera	Gomphidae		larvae	10.81	I
Odonata Anisoptera	Gomphidae	Octogomphus specularis	larvae		
Plecoptera	Chloroperlidae		larvae	3.60	I
Systellognatha					
Plecoptera	Perlidae		larvae	79.28	I
Systellognatha					
Plecoptera	Perlidae	Calineuria californica	larvae	72.52	
Systellognatha					
Plecoptera	Perlidae	Hesperoperla pacifica	larvae	15.77	
Systellognatha					
Plecoptera	Perlodidae		larvae	46.85	I
Systellognatha					
Plecoptera	Perlodidae	Perlodinae Arcynopterygini Skwala americana	larvae	8.56	
Systellognatha					
Trichoptera	Hydropsychidae		larvae	72.07	I
Trichoptera	Hydropsychidae	Hydropsychinae Cheumatopsyche	larvae	156.31	
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	164.86	
Trichoptera	Hydroptilidae		larvae	68.47	U
Trichoptera	Leptoceridae	Leptocerinae Mystacidini Mystacides	larvae	39.64	
Trichoptera	Philopotamidae	Chimarrinae Chimarra	larvae	3.60	
Trichoptera	Philopotamidae	Philopotaminae Wormaldia	larvae	3.60	
Trichoptera	Rhyacophilidae	Rhyacophila betteni group	larvae	9.01	
Phylum: Mollusca					
Class: Gastropoda					
Basommatophora	Physidae	Physinae Physa	adult	7.21	

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**Total: OTU Taxa : 48      Genera : 31      Families : 30      2184.23**

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 18, 2007 at station MYUBAOURHS -2, Our House Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 38% of the collected sample. A total of 645 individuals were removed, identified and retained. The sample identification number is 140355. OTU=operational taxonomic unit. Notes - identification to genus or species was not supported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
	Trombidiformes	Torrenticolidae	Torrenticola	adult	7.21
	Prostigmata				
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae		larvae	126.13	
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	277.48	
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	adult	39.64	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	larvae	3.60	
Coleoptera Polyphaga	Elmidae	Zaitzevia	adult	7.21	
Coleoptera Polyphaga	Psephenidae	Psepheninae Psephenus	larvae	152.25	
Diptera Nematocera	Chironomidae	Chironominae	larvae	57.66	
Diptera Nematocera	Chironomidae	Orthocladiinae	larvae	151.35	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	18.02	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	3.60	
Diptera Nematocera	Tipulidae	Hexatoma	larvae	4.95	
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	7.21	
Ephemeroptera	Baetidae	Baetis	larvae	277.93	
Pisciforma					
Ephemeroptera	Baetidae	Dipheter hageni	larvae	21.62	
Pisciforma					
Ephemeroptera	Heptageniidae		larvae	241.44	I
Setisura					
Ephemeroptera	Heptageniidae	Epeorus	larvae	22.97	
Setisura					
Ephemeroptera	Heptageniidae	Rhithrogena	larvae	122.52	
Setisura					
Ephemeroptera	Leptohyphidae	Tricorythodes	larvae	90.09	
Furcatergalia					
Odonata Zygoptera	Coenagrionidae	Argia	larvae	1.35	
Odonata Anisoptera	Gomphidae		larvae	22.97	I
Odonata Anisoptera	Gomphidae	Ophiogomphus occidentis	larvae	9.91	
Plecoptera	Chloroperlidae		larvae	36.04	I
Systellognatha					
Plecoptera	Nemouridae	Zapada cinctipes	larvae	3.60	
Euholognatha					
Plecoptera	Perlidae		larvae	14.41	I
Systellognatha					
Plecoptera	Perlidae	Calineuria californica	larvae	92.34	
Systellognatha					
Plecoptera	Perlidae	Hesperoperla pacifica	larvae	4.95	
Systellognatha					
Plecoptera	Perlodidae		larvae	14.41	I
Systellognatha					
Plecoptera	Perlodidae	Perlodinae Arcynopterygini Skwala americana	larvae	3.60	
Systellognatha					
Plecoptera					
Systellognatha					
Plecoptera	Hydropsychidae		larvae	90.09	

Trichoptera	Hydropsychidae	Hydropsychinae Cheumatopsyche	larvae	68.47
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	109.46
Trichoptera	Hydroptilidae	Hydroptilinae Hydroptilini Hydroptila	larvae	10.81
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	larvae	14.41
Trichoptera	Odontoceridae	Marilia flexuosa	larvae	18.02
Trichoptera	Philopotamidae	Philopotaminae Wormaldia	larvae	90.54
Trichoptera	Rhyacophilidae	Rhyacophila betteni group	larvae	4.95
Phylum: Mollusca				
Class: Gastropoda				
Basommatophora	Physidae	Physinae Physa	adult	6.31

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Total: OTU Taxa : **38**      Genera : **28**      Families : **22**      2256.76

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 13, 2007 at station SYUBAPOORMN-1, Poorman Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 50% of the collected sample. A total of 741 individuals were removed, identified and retained. The sample identification number is 140356. OTU=operational taxonomic unit. Notes - identification to genus or species was not sported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Annelida					
Class: Clitellata		SubClass: Oligochaeta			
			adult	16.22	
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
Trombidiformes	Lebertiidae	Lebertia	adult	5.41	
Prostigmata					
Trombidiformes	Sperchonidae	Sperchon	adult	13.51	
Prostigmata					
Trombidiformes	Torrenticolidae	Torrenticola	adult	56.76	
Prostigmata					
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae	Ampumixis dispar	larvae	13.51	
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	51.35	
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	adult	16.22	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	adult	2.70	
Coleoptera Polyphaga	Elmidae	Zaitzevia	adult	21.62	
Coleoptera Polyphaga	Psephenidae	Eubrianacinae Eubrianax edwardsii	larvae	2.70	
Diptera Nematocera	Blephariceridae		larvae	21.62	I
Diptera Nematocera	Ceratopogonidae	Ceratopogoninae Sphaeromiini Probezia	larvae	2.70	
Diptera Nematocera	Chironomidae	Chironominae	larvae	32.43	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	24.32	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	2.70	
Diptera Brachycera	Empididae	Clinocera	larvae	2.70	
Diptera Brachycera	Empididae	Hemerodromiinae Hemerodromiini Chelifera	larvae	2.70	
Diptera Nematocera	Psychodidae	Maruina	larvae	5.41	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	812.16	
Diptera Nematocera	Tipulidae		larvae	13.51	I
Diptera Nematocera	Tipulidae	Dicranota	larvae	2.70	
Diptera Nematocera	Tipulidae	Hexatoma	larvae	2.70	
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	5.41	
Ephemeroptera	Ameletidae	Ameletus	larvae	2.70	
Pisciforma					
Ephemeroptera	Baetidae	Baetis	larvae	86.49	
Pisciforma					
Ephemeroptera	Baetidae	Centroptilum	larvae	2.70	
Pisciforma					
Ephemeroptera	Heptageniidae		larvae	6.76	D
Setisura					
Ephemeroptera	Heptageniidae	Epeorus	larvae	24.32	
Setisura					
Ephemeroptera	Heptageniidae	Ironodes	larvae	10.81	
Setisura					
Ephemeroptera	Heptageniidae	Rhithrogena	larvae	10.81	
Setisura					

Ephemeroptera Furcatergalia	Leptophlebiidae	Paraleptophlebia	larvae	8.11	
Megaloptera	Corydalidae	Orohermes crepusculus	larvae	2.70	
Odonata Zygoptera	Coenagrionidae	Argia	larvae	5.41	I
Odonata Anisoptera	Gomphidae		larvae	10.81	I
Odonata Anisoptera	Gomphidae	Octogomphus specularis	larvae	2.70	
Plecoptera	Chloroperlidae		larvae	13.51	I
Systellognatha Plecoptera	Chloroperlidae	Sweltsa	larvae	2.70	
Systellognatha Plecoptera	Leuctridae	Moselia infuscata	larvae	2.70	
Euhognatha Plecoptera	Nemouridae	Malenka	larvae	14.86	
Euhognatha Plecoptera	Perlidae		larvae	27.03	I
Systellognatha Plecoptera	Perlidae	Calineuria californica	larvae	48.65	
Systellognatha Plecoptera	Perlidae	Hesperoperla pacifica	larvae	59.46	
Systellognatha Plecoptera	Perlodidae		larvae	5.41	I
Systellognatha Trichoptera	Calamoceratidae	Calamoceratinae Heteroplectron californicum	larvae	2.70	
Trichoptera	Hydropsychidae		larvae	13.51	I
Trichoptera	Hydropsychidae	Arctopsychinae Arctopsyche	larvae	18.92	I
Trichoptera	Hydropsychidae	Hydropsychinae Cheumatopsyche	larvae	29.73	
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	227.03	
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	larvae	113.51	
Trichoptera	Philopotamidae	Philopotaminae Wormaldia	larvae	36.49	
Trichoptera	Rhyacophilidae	Rhyacophila betteni group	larvae	9.46	
Trichoptera	Rhyacophilidae	Rhyacophila brunnea/vemna group	larvae	8.11	
Trichoptera	Rhyacophilidae	Rhyacophila coloradensis group	larvae	2.70	
Trichoptera	Rhyacophilidae	Rhyacophila hyalinata group	larvae	5.41	

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Total: OTU Taxa : **54**      Genera : **42**      Families : **29**      1971.62

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 20, 2007 at station SYUBACYNCK-1, Canyon Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 38% of the collected sample. A total of 663 individuals were removed, identified and retained. The sample identification number is 140357. OTU=operational taxonomic unit. Notes - identification to genus or species was not supported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Annelida					
Class: Clitellata		SubClass: Oligochaeta			
			adult		
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
Trombidiformes	Hygrobatidae	Hygrobates	adult	10.81	
Prostigmata					
Trombidiformes	Lebertiidae	Lebertia	adult	3.60	
Prostigmata					
Trombidiformes	Mideopsidae	Mideopsis	adult	7.21	
Prostigmata					
Trombidiformes	Sperchonidae	Sperchon	adult	10.81	
Prostigmata					
Trombidiformes	Torrenticolidae	Torrenticola	adult	32.43	
Prostigmata					
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae		larvae	43.24	
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	111.71	
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	adult	10.81	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	adult	19.82	
Coleoptera Polyphaga	Elmidae	Zaitzevia	adult	12.61	
Diptera Nematocera	Blephariceridae	Blepharicerinae Blepharicerini Agathon	larvae	14.41	
Diptera Nematocera	Ceratopogonidae	Forcipomyiinae Atrichopogon	larvae	3.60	
Diptera Nematocera	Chironomidae		pupae	18.02	
Diptera Nematocera	Chironomidae	Chironominae	larvae	169.37	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	176.58	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	36.04	
Diptera Nematocera	Psychodidae	Maruina	larvae	36.04	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	464.41	
Diptera Nematocera	Tipulidae		larvae	3.60	I
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	6.08	
Diptera Nematocera	Tipulidae	Limoniinae Hexatomini Limnophila	larvae	10.81	
Ephemeroptera	Ameletidae	Ameletus	larvae	3.60	
Pisciforma					
Ephemeroptera	Baetidae		larvae	25.23	I,D
Pisciforma					
Ephemeroptera	Baetidae	Baetis	larvae	255.86	
Pisciforma					
Ephemeroptera	Baetidae	Callibaetis	larvae	3.60	
Pisciforma					
Ephemeroptera	Baetidae	Centroptilum	larvae	14.41	
Pisciforma					
Ephemeroptera	Baetidae	Dipheter hageni	larvae	3.60	
Pisciforma					
Ephemeroptera	Heptageniidae		larvae	57.66	D
Setisura					
Ephemeroptera	Heptageniidae	Epeorus	larvae	54.05	
Setisura					

Ephemeroptera Setisura	Heptageniidae	Ironodes	larvae	3.60	
Ephemeroptera Setisura	Heptageniidae	Rhithrogena	larvae	32.43	
Ephemeroptera Furcatergalia	Leptohyphidae	Tricorythodes	larvae	3.60	
Ephemeroptera Furcatergalia	Leptophlebiidae		larvae	32.43	D
Megaloptera	Corydalidae		larvae	8.56	I
Megaloptera	Corydalidae	Orohermes crepusculus	larvae		
Odonata Zygoptera	Coenagrionidae		larvae	10.81	I,D
Plecoptera	Chloroperlidae		larvae	36.04	I
Systellognatha Plecoptera	Leuctridae		larvae	3.60	D
Euholognatha Plecoptera	Nemouridae	Malenka	larvae	3.60	
Euholognatha Plecoptera	Perlidae		larvae	57.66	I
Systellognatha Plecoptera	Perlidae	Calineuria californica	larvae	30.18	
Systellognatha Plecoptera	Perlidae	Hesperoperla pacifica	larvae	28.83	
Systellognatha Plecoptera	Perlodidae		larvae	3.60	I
Systellognatha Plecoptera	Perlodidae	Perlodinae Arcynopterygini Perlinodes aurea	larvae		
Systellognatha Trichoptera	Brachycentridae	Micrasema	larvae	10.81	
Trichoptera	Glossosomatidae	Agapetinae Agapetus	larvae	3.60	
Trichoptera	Helicopsychidae	Helicopsyche borealis	larvae	3.60	
Trichoptera	Hydropsychidae		larvae	10.81	D
Trichoptera	Hydropsychidae	Hydropsychinae Cheumatopsyche	larvae	3.60	
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	79.28	
Trichoptera	Hydroptilidae		pupae	3.60	
Trichoptera	Hydroptilidae	Hydroptilinae Hydroptilini Hydroptila	larvae	10.81	
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	larvae	263.06	
Trichoptera	Philopotamidae	Philopotaminae Wormaldia	larvae	32.43	
Trichoptera	Polycentropodidae	Polycentropodinae Polycentropus	larvae	3.60	
Trichoptera	Rhyacophilidae	Rhyacophila	pupae		
Trichoptera	Rhyacophilidae	Rhyacophila betteni group	larvae	6.31	
Trichoptera	Rhyacophilidae	Rhyacophila brunnea/vemna group	larvae	10.81	
Trichoptera	Rhyacophilidae	Rhyacophila coloradensis group	larvae	3.60	
Trichoptera	Rhyacophilidae	Rhyacophila hyalinata group	larvae	3.60	

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Total: OTU Taxa : **61**      Genera : **43**      Families : **33**      2366.67

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 20, 2007 at station NYUBAUNFLT-1, Union Flat Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 25% of the collected sample. A total of 681 individuals were removed, identified and retained. The sample identification number is 140358. OTU=operational taxonomic unit. Notes - identification to genus or species was not supported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
Trombidiformes	Sperchonidae	Sperchon	adult	37.84	
Prostigmata					
Trombidiformes	Torrenticolidae	Torrenticola	adult	10.81	
Prostigmata					
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae		larvae	16.22	I
Coleoptera Polyphaga	Elmidae	Ampumixis dispar	larvae	10.81	
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	59.46	U
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	adult	5.41	
Coleoptera Polyphaga	Elmidae	Zaitzevia	adult		
Coleoptera Polyphaga	Psephenidae		larvae	5.41	I
Coleoptera Polyphaga	Psephenidae	Eubrianacinae Eubrianax edwardsii	larvae		
Diptera Brachycera	Athericidae	Atherix pachypus	larvae		
Diptera Nematocera	Blephariceridae		larvae	16.22	I
Diptera Nematocera	Blephariceridae	Blepharicerinae Blepharicerini Bibiocephala	larvae	10.81	
Diptera Nematocera	Ceratopogonidae	Ceratopogoninae Sphaeromiini Probezzia	larvae	10.81	
Diptera Nematocera	Chironomidae	Chironominae	larvae	70.27	
Diptera Nematocera	Chironomidae	Orthocladiinae	larvae	178.38	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	10.81	
Diptera Brachycera	Empididae	Clinocera	larvae	10.81	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	790.54	
Diptera Brachycera	Tabanidae	Tabanus	larvae	5.41	
Diptera Nematocera	Tipulidae	Dicranota	larvae	10.81	
Diptera Nematocera	Tipulidae	Hexatoma	larvae	9.46	
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	16.22	
Ephemeroptera	Baetidae	Baetis	larvae	167.57	
Pisciforma					
Ephemeroptera	Ephemerellidae		larvae	48.65	D
Furcatergalia					
Ephemeroptera	Ephemerellidae	Drunella doddsii	larvae	16.22	
Furcatergalia					
Ephemeroptera	Ephemerellidae	Serratella	larvae	10.81	U
Furcatergalia					
Ephemeroptera	Heptageniidae		larvae	243.24	I,D
Setisura					
Ephemeroptera	Heptageniidae	Epeorus	larvae	86.49	
Setisura					
Ephemeroptera	Heptageniidae	Rhithrogena	larvae	10.81	
Setisura					
Ephemeroptera	Leptophlebiidae		larvae	5.41	D
Furcatergalia					
Odonata Anisoptera	Gomphidae		larvae	5.41	I
Plecoptera			larvae	43.24	I

Plecoptera	Chloroperlidae	Sweltsa	larvae	21.62	
Systelognatha					
Plecoptera	Perlidae		larvae	32.43	I
Systelognatha					
Plecoptera	Perlidae	Calineuria californica	larvae	59.46	
Systelognatha					
Plecoptera	Perlidae	Hesperoperla pacifica	larvae	5.41	
Systelognatha					
Plecoptera	Perlodidae	Oroperla barbara	larvae		
Systelognatha					
Plecoptera	Perlodidae	Perlodinae Arcynopterygini Perlinodes aurea	larvae	33.78	
Systelognatha					
Trichoptera	Brachycentridae	Micrasema	larvae	59.46	
Trichoptera	Glossosomatidae	Agapetinae Agapetus	larvae	32.43	
Trichoptera	Glossosomatidae	Glossosomatinae Glossosomatini	larvae	22.97	
		Glossosoma			
Trichoptera	Helicopsychidae	Helicopsyche borealis	larvae	10.81	
Trichoptera	Hydropsychidae	Arctopsychinae Arctopsyche grandis	larvae	12.16	
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	140.54	
Trichoptera	Hydroptilidae		larvae	10.81	U
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	larvae	1200.00	
Trichoptera	Polycentropodidae	Polycentropodinae Polycentropus	larvae	5.41	
Trichoptera	Rhyacophilidae	Rhyacophila	larvae	5.41	I
Trichoptera	Uenoidae		larvae	32.43	I

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Total: OTU Taxa : **49**      Genera : **35**      Families : **29**      3636.49

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 17, 2007 at station SYUBALANGCR-2, Langs Crossing Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 25% of the collected sample. A total of 618 individuals were removed, identified and retained. The sample identification number is 140359. OTU=operational taxonomic unit. Notes - identification to genus or species was not sported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Arthropoda					
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae	Optioservus quadrimaculatus	adult	10.81	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	larvae	48.65	
Diptera Nematocera	Chironomidae	Chironominae	larvae	216.22	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	931.08	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	145.95	
Diptera Brachycera	Empididae	Neoplasta	larvae	10.81	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	27.03	
Diptera Nematocera	Tipulidae	Dicranota	larvae	5.41	
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	50.00	
Ephemeroptera	Baetidae	Baetis	larvae	372.97	
Pisciforma					
Ephemeroptera	Baetidae	Dipheter hageni	larvae	16.22	
Pisciforma					
Ephemeroptera	Ephemerellidae		larvae	54.05	
Furcatergalia					
Ephemeroptera	Heptageniidae		larvae	43.24	I,D
Setisura					
Ephemeroptera	Heptageniidae	Epeorus	larvae	12.16	
Setisura					
Ephemeroptera	Leptohyphidae	Tricorythodes	larvae	10.81	
Furcatergalia					
Ephemeroptera	Leptophlebiidae		larvae	43.24	I
Furcatergalia					
Megaloptera	Corydalidae		larvae	5.41	I
Megaloptera	Sialidae	Sialis	larvae	10.81	
Plecoptera	Chloroperlidae	Sweltsa	larvae	33.78	
Systellognatha					
Plecoptera	Nemouridae		larvae	443.24	D
Euholognatha					
Plecoptera	Nemouridae	Malenka	larvae	156.76	U
Euholognatha					
Plecoptera	Nemouridae	Zapada cinctipes	larvae	75.68	
Euholognatha					
Plecoptera	Nemouridae	Zapada columbiana	larvae	37.84	
Euholognatha					
Plecoptera	Peltoperlidae	Yoraperla	larvae	5.41	U
Systellognatha					
Plecoptera	Perlidae		larvae	16.22	I
Systellognatha					
Plecoptera	Perlidae	Calineuria californica	larvae	20.27	
Systellognatha					
Plecoptera	Perlodidae		larvae	48.65	I
Systellognatha					
Plecoptera	Perlodidae	Perlodinae Arcynopterygini Skwala americana	larvae	5.41	
Systellognatha					
Trichoptera	Apataniidae	Apatania	larvae	10.81	
Trichoptera	Brachycentridae	Micrasema	larvae	44.59	
Trichoptera	Glossosomatidae	Glossosomatinae Glossosomatini Glossosoma	larvae	16.22	

Trichoptera	Hydropsychidae		larvae	27.03	I
Trichoptera	Hydropsychidae	Arctopsychinae Arctopsyche	larvae	16.22	
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	32.43	
Trichoptera	Hydroptilidae		larvae	81.08	U
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	larvae	140.54	
Trichoptera	Limnephilidae		larvae	5.41	U
Trichoptera	Polycentropodidae	Polycentropodinae Polycentropus	larvae	16.22	
Trichoptera	Rhyacophilidae	Rhyacophila	larvae	16.22	U
Trichoptera	Rhyacophilidae	Rhyacophila betteni group	larvae	5.41	
Trichoptera	Rhyacophilidae	Rhyacophila brunnea/vemna group	larvae	17.57	
Phylum: Mollusca					
Class: Gastropoda					
Neotaenioglossa	Hydrobiidae	Nymphophilinae	larvae	8.11	U

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Total: OTU Taxa : **42**      Genera : **28**      Families : **27**      3295.95

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 17, 2007 at station MYUBAMILTON-1, Milton Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 13% of the collected sample. A total of 907 individuals were removed, identified and retained. The sample identification number is 140360. OTU=operational taxonomic unit. Notes - identification to genus or species was not supported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
	Trombidiformes		adult	10.81	U
	Trombidiformes	Sperchonidae Sperchon	adult	21.62	
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae		larvae	21.62	
Coleoptera Polyphaga	Elmidae	Zaitzevia	adult	32.43	U
Diptera Nematocera	Chironomidae		pupae	54.05	U
Diptera Nematocera	Chironomidae	Chironominae	larvae	129.73	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	618.92	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	56.76	
Diptera Nematocera	Dixidae	Dixella	larvae	10.81	
Diptera Brachycera	Empididae	Neoplasta	larvae	10.81	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	540.54	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium tuberosum	pupae	21.62	
Diptera Nematocera	Tipulidae	Hexatoma	larvae	25.68	
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	10.81	
Ephemeroptera	Ameletidae	Ameletus	larvae	10.81	
Pisciforma					
Ephemeroptera	Baetidae	Baetis	larvae	358.11	
Pisciforma					
Ephemeroptera	Ephemerellidae		larvae	648.65	I,D
Furcatergalia					
Ephemeroptera	Ephemerellidae	Caudatella	larvae	10.81	
Furcatergalia					
Ephemeroptera	Ephemerellidae	Drunella doddsii	larvae	10.81	
Furcatergalia					
Ephemeroptera	Ephemerellidae	Drunella spinifera	larvae	12.16	
Furcatergalia					
Ephemeroptera	Heptageniidae		larvae	659.46	I,D
Setisura					
Ephemeroptera	Heptageniidae	Cinygmula	larvae	1062.16	
Setisura					
Ephemeroptera	Heptageniidae	Epeorus	larvae	456.76	
Setisura					
Ephemeroptera	Leptophlebiidae	Paraleptophlebia	larvae	1116.22	
Furcatergalia					
Megaloptera	Corydalidae	Orohermes crepusculus	larvae		
Megaloptera	Sialidae	Sialis	larvae		
Plecoptera	Chloroperlidae	Sweltsa	larvae	227.03	
Systellognatha					
Plecoptera	Nemouridae		larvae	702.70	I,D
Euholognatha					
Plecoptera	Nemouridae	Malenka	larvae	129.73	
Euholognatha					
Plecoptera	Nemouridae	Ostrocerca	larvae	175.68	U
Euholognatha					
Plecoptera	Nemouridae	Zapada	larvae	313.51	I
Euholognatha					

Plecoptera	Nemouridae	Zapada cinctipes	larvae	227.03	
Euholognatha					
Plecoptera	Perlidae	Calineuria californica	larvae	89.19	
Systelognatha					
Plecoptera	Perlodidae	Perlodinae Arcynopterygini Skwala	larvae	10.81	
Systelognatha		americana			
Trichoptera	Brachycentridae	Micrasema	larvae	681.08	
Trichoptera	Glossosomatidae	Glossosomatinae Glossosomatini	larvae	97.30	
		Glossosoma			
Trichoptera	Hydropsychidae		larvae	162.16	I
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	220.27	
Trichoptera	Hydroptilidae		larvae	140.54	U
Trichoptera	Lepidostomatidae	Lepidostomatinae Lepidostoma	larvae	32.43	
Trichoptera	Rhyacophilidae	Rhyacophila	larvae	32.43	I
Trichoptera	Rhyacophilidae	Rhyacophila betteni group	larvae	12.16	
Trichoptera	Rhyacophilidae	Rhyacophila brunnea/vemna group	larvae	56.76	
Trichoptera	Sericostomatidae	Gumaga	larvae	10.81	
Phylum: Platyhelminthes					
Class: Turbellaria			adult	302.70	

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**Total: OTU Taxa : 45      Genera : 33      Families : 25      9568.92**

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Taxonomic list and densities of aquatic invertebrates identified and retained from a sample collected September 17, 2007 at station SYUBAPLAV-2, Plavada Creek, Nevada county, California. The sample was collected from riffle habitat using a surber net. The total area sampled was 0.740 square meters. The percentage of the sample that was identified and retained was 38% of the collected sample. A total of 630 individuals were removed, identified and retained. The sample identification number is 140361. OTU=operational taxonomic unit. Notes - identification to genus or species was not supported because: I - immature organisms, D- damaged organisms, M - poor slide mount, G - gender, U - indistinct characters or distribution, R - retained in our reference collection.

Order	Family	Subfamily/Genus/Species	Life Stage	Density	Notes
Phylum: Arthropoda					
Class: Arachnida		SubClass: Acari			
	Trombidiformes		adult	7.21	U
	Trombidiformes	Sperchonidae Sperchon	adult	36.04	
Class: Insecta		SubClass: Pterygota			
Coleoptera Polyphaga	Elmidae	Optioservus	larvae	12.16	
Coleoptera Polyphaga	Elmidae	Ordobrevia nubifera	larvae	90.09	
Coleoptera Polyphaga	Elmidae	Zaitzevia	larvae	30.63	
Coleoptera Polyphaga	Psephenidae	Eubrianacinae Eubrianax edwardsii	larvae	43.69	
Diptera Nematocera	Chironomidae	Chironominae	larvae	46.85	
Diptera Nematocera	Chironomidae	Orthoclaadiinae	larvae	79.28	
Diptera Nematocera	Chironomidae	Tanypodinae	larvae	3.60	
Diptera Nematocera	Psychodidae	Maruina	larvae	7.21	
Diptera Nematocera	Simuliidae	Simuliinae Simuliini Simulium	larvae	924.32	
Diptera Nematocera	Tipulidae	Limoniinae Antocha monticola	larvae	7.21	
Ephemeroptera	Baetidae	Acentrella	larvae	18.02	I
Pisciforma Ephemeroptera	Baetidae	Baetis	larvae	10.81	
Pisciforma Ephemeroptera	Baetidae	Centroptilum	larvae		
Pisciforma Ephemeroptera	Ephemerellidae		larvae	183.78	I
Furcatergalia Ephemeroptera	Heptageniidae		larvae	7.21	I
Setisura Ephemeroptera	Heptageniidae	Epeorus	larvae	3.60	
Setisura Ephemeroptera	Heptageniidae	Ironodes	larvae	10.81	
Setisura Ephemeroptera	Leptophlebiidae		larvae	14.41	I
Furcatergalia Plecoptera	Chloroperlidae	Sweltsa	larvae	19.37	
Systellognatha Plecoptera	Nemouridae	Malenka	larvae	7.21	
Euholognatha Plecoptera	Nemouridae	Zapada cinctipes	larvae	21.62	
Euholognatha Plecoptera	Perlidae	Calineuria californica	larvae		
Systellognatha Plecoptera	Perlodidae		larvae	10.81	I
Systellognatha Plecoptera	Perlodidae	Perlodinae Arcynopterygini Skwala americana	larvae	45.95	
Systellognatha Trichoptera	Brachycentridae	Amiocentrus aspilus	larvae	61.26	
Trichoptera	Glossosomatidae		larvae	72.07	I
Trichoptera	Hydropsychidae		larvae	32.43	I
Trichoptera	Hydropsychidae	Hydropsychinae Cheumatopsyche	larvae	75.68	
Trichoptera	Hydropsychidae	Hydropsychinae Hydropsyche	larvae	260.36	

Trichoptera	Hydroptilidae		larvae	21.62	i
Trichoptera	Lepidostomatidae	Lepidostomatinae	larvae	8.56	
Trichoptera	Rhyacophilidae	Rhyacophila	pupae	16.22	

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Total: OTU Taxa : **34**      Genera : **23**      Families : **21**      2220.72

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