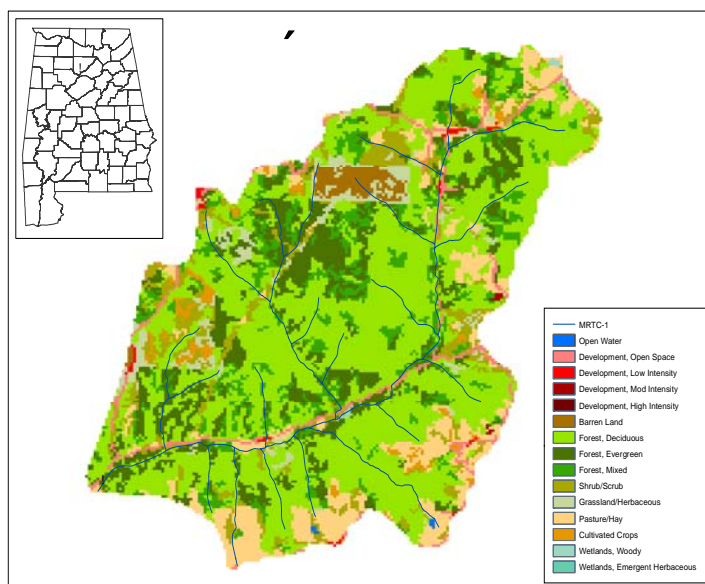


## Marriott Creek on unnamed road south of Cullman County Road 18 (34.04211/-86.86283)

### BACKGROUND

Marriott Creek is among the least-disturbed watersheds in the Black Warrior and Cahaba Rivers basin group based on landuse, road density, and population density. It has been monitored as a [“best attainable” condition reference watershed](#) by the Alabama Department of Environmental Management (ADEM) for comparison with other streams in the Southwestern Appalachian (68e) ecoregion.

Additionally, the ADEM selected the Marriott Creek watershed for biological and water quality monitoring as part of the [2007 Assessment of the Black Warrior and Cahaba \(BWC\) River Basins](#). The objectives of the BWC Basin Assessments were to assess the biological integrity of each monitoring site and to estimate overall water quality within the BWC basin group. Drought conditions prevented the completion of habitat and macroinvertebrate assessments.



**Figure 1.** Sampling location and landuse within the Marriott Creek watershed at MRTC-1.

**Table 1.** Summary of watershed characteristics.

Watershed Characteristics		Black Warrior River
Basin		8
Drainage Area (mi <sup>2</sup> )		68e
Ecoregion <sup>a</sup>		
% Landuse		
Open water		<1
Wetland	Woody	<1
Forest	Deciduous	49
	Evergreen	14
	Mixed	10
Shrub/scrub		7
Grassland/herbaceous		3
Pasture/hay		10
Cultivated crops		1
Development	Open space	3
	Low intensity	<1
	Moderate intensity	<1
Barren		1
Population/km <sup>2b</sup>		4

a. Dissected Plateau

b. 2000 US Census

### WATERSHED CHARACTERISTICS

Watershed characteristics are summarized in Table 1. Marriott Creek is a [Fish & Wildlife \(F&W\)](#) stream located in Cullman County. Based on the 2000 National Land Cover Dataset, landuse within the watershed is primarily forest (73%), with some shrub and pasture areas (Figure 1). Population density is relatively low in this area. As of February 17, 2011, the ADEM has issued no NPDES permits in this watershed.

### WATER CHEMISTRY

Results of water chemistry analyses are presented in Table 2. [In situ measurements](#) and [water samples](#) were collected monthly, semi-monthly (metals), or quarterly (pesticides, atrazine, and semi-volatile organics) during March through October of 2007 to help identify any stressors to the biological communities. However, during six of the nine sampling events (May through October 2007), Marriott Creek at MRTC-1 was dry.

### SUMMARY

Due to drought conditions in 2007, the habitat and macroinvertebrate assessments of Marriott Creek at MRTC-1 were not completed. Additionally, monthly water sampling could not be completed March-October because the streambed was dry. Further sampling will be required to accurately assess the conditions for this watershed.

**Table 2.** Summary of water quality data collected March–October, 2007. Minimum (Min) and maximum (Max) values calculated using minimum detection limits (MDL) when results were less than this value. Median, average (Avg), and standard deviations (SD) values were calculated by multiplying the MDL by 0.5 when results were less than this value.

Parameter	N	Min	Max	Med	Avg	SD
<b>Physical</b>						
Temperature (°C)	3	12.6	22.6	16.2	17.1	5.0
Turbidity (NTU)	3	4.6	12.6	6.6	8.0	4.2
Total Dissolved Solids (mg/L)	3	14.0	56.0	37.0	35.7	21.0
Total Suspended Solids (mg/L)	3	4.0	5.0	4.0	4.3	0.6
Specific Conductance (µmhos)	3	42.2	58.3	49.2 <sup>G</sup>	49.9	8.1
Hardness (mg/L)	1				18.0	
Alkalinity (mg/L)	3	12.4	17.6	15.1	15.0	2.6
Stream Flow (cfs)	3	0.8	8.6	4.3	4.6	3.9
<b>Chemical</b>						
Dissolved Oxygen (mg/L)	3	8.1	9.6	8.6	8.8	0.8
pH (su)	3	6.8	7.0	6.9	6.9	0.1
Ammonia Nitrogen (mg/L)	3	<0.015	<0.015	0.008	0.008	0.000
Nitrate+Nitrite Nitrogen (mg/L)	3	0.103	0.188	0.179	0.157	0.047
Total Kjeldahl Nitrogen (mg/L)	3	<0.150	0.231	0.075	0.127	0.090
Total Nitrogen (mg/L)	3	<0.178	0.410	0.263	0.284	0.117
Dissolved Reactive Phosphorus (mg/L)	3	0.011	0.056	0.051 <sup>M</sup>	0.039	0.025
Total Phosphorus (mg/L)	3	0.011	0.057	0.034	0.034	0.023
CBOD-5 (mg/L)	3	1.2	2.8	1.5	1.8	0.8
COD (mg/L)	2	<2.0	<2.0	1.0	1.0	0.0
TOC (mg/L)	2	1.9	2.8	2.4	2.4	0.7
Chlorides (mg/L)	3	1.9	2.2	1.8 <sup>M</sup>	1.9	0.3
<b>Total Metals</b>						
Aluminum (mg/L)	1				0.340	
Iron (mg/L)	1				0.378	
Manganese (mg/L)	1				0.029	
<b>Dissolved Metals</b>						
Aluminum (mg/L)	1				<0.100	
Antimony (µg/L)	1				<1.6	
Arsenic (µg/L)	1				<0.5	
Cadmium (mg/L)	1				<0.00003	
Chromium (mg/L)	1				<0.002	
Copper (mg/L)	1				<0.002	
Iron (mg/L)	1				0.090	
Lead (µg/L)	1				<1.1	
Manganese (mg/L)	1				0.020	
Mercury (µg/L)	1				<0.5	
Nickel (mg/L)	1				<0.004	
Selenium (µg/L)	1				<1.6	
Thallium (µg/L)	1				<1.2	
Zinc (mg/L)	1				<0.002	
<b>Biological</b>						
<sup>J</sup> Chlorophyll a (ug/L)	3	0.10	1.87	0.53	0.83	0.92
<sup>J</sup> Fecal Coliform (col/100 mL)	3	10	350	30	130	191

<sup>J</sup>=estimate; M=value >90% of all verified ecoregional reference reach data collected in the ecoregion 68e; G=value higher than median concentration of all verified ecoregional reference reach data collected in the ecoregion 68e; N=# samples.

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