

# Supplementary Materials: Development of Ecogeomorphological (EGM) Stream Design and Assessment Tools for the Piedmont of Alabama, USA

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Table S1. Fish species encountered in 2011 sampling.

Family	Species	Common Name
Anguillidae	<i>Anguilla rostrata</i>	American Eel
Catostomidae	<i>Erimyzon oblongus</i>	Creek Chubsucker
	<i>Hypentelium etowanum</i>	Alabama Hog Sucker
	<i>Minytrema melanops</i>	Spotted Sucker
	<i>Moxostoma duquesnei</i>	Black Redhorse
	<i>Moxostoma erythrurum</i>	Golden Redhorse
	<i>Moxostoma poecilurum</i>	Blacktail Redhorse
Centrarchidae	<i>Ambloplites ariommus</i>	Shadow Bass
	<i>Lepomis auritus</i>	Redbreast Sunfish
	<i>Lepomis cyanellus</i>	Green Sunfish
	<i>Lepomis gulosus</i>	Warmouth
	<i>Lepomis macrochirus</i>	Bluegill
	<i>Lepomis megalotis</i>	Longear Sunfish
	<i>Lepomis miniatus</i>	Spotted Sunfish
	<i>Micropterus coosae</i>	Redeye Bass
	<i>Micropterus henshalli</i>	Alabama Spotted Bass
	<i>Micropterus salmoides</i>	Largemouth Bass
Cottidae	<i>Cottus carolinae</i>	Banded Sculpin
	<i>Cottus tallapoosae</i>	Tallapoosa Sculpin
Cyprinidae	<i>Campostoma oligolepis</i>	Largescale Stoneroller
	<i>Cyprinella callistia</i>	Alabama Shiner
	<i>Cyprinella gibbsi</i>	Tallapoosa Shiner
	<i>Cyprinella venusta</i>	Blacktail Shiner
	<i>Hybopsis lineapunctata</i>	Lined Chub
	<i>Luxilus chrysocephalus</i>	Striped Shiner
	<i>Lythrurus bellus</i>	Pretty Shiner
	<i>Macrhybopsis storeriana</i>	Silver Chub
	<i>Nocomis leptcephalus</i>	Bluehead Chub
	<i>Notropis ammophilus</i>	Orangefin Shiner
	<i>Notropis baileyi</i>	Rough Shiner
	<i>Notropis stilbius</i>	Silverstripe Shiner
	<i>Notropis texanus</i>	Weed shiner
	<i>Notropis xaenocephalus</i>	Coosa Shiner
	<i>Phenacobius catostomus</i>	Riffle Minnow
<i>Semotilus atromaculatus</i>	Creek Chub	

Table S1. Cont.

Family	Species	Common Name
Fundulidae	<i>Fundulus bifax</i>	Stippled Studfish
	<i>Fundulus olivaceus</i>	Blackspotted Topminnow
Ictaluridae	<i>Ameiurus natalis</i>	Yellow Bullhead
	<i>Ictalurus punctatus</i>	Channel Catfish
	<i>Noturus leptacanthus</i>	Speckled Madtom
	<i>Noturus nocturnus</i>	Freckled Madtom
Percidae	<i>Etheostoma chuckwachatee</i>	Lipstick Darter
	<i>Etheostoma rupestre</i>	Rock Darter
	<i>Etheostoma stigmaeum</i>	Speckled Darter
	<i>Etheostoma tallapoosae</i>	Tallapoosa Darter
	<i>Percina kathae</i>	Mobile Logperch
	<i>Percina nigrofasciata</i>	Blackbanded darter
	<i>Percina palmaris</i>	Bronze Darter
	<i>Percina smithvanizi</i>	Muscadine Darter
Petromyzontidae	<i>Ichthyomyzon gagei</i>	Southern Brook Lamprey
Poeciliidae	<i>Gambusia affinis</i>	Mosquitofish

**Table S2.** Significant correlative relationships between measures of fish, crayfish, and macroinvertebrate assemblages and local habitat. Only significant ( $p < 0.05$ ) relationships are depicted, with positive relationships denoted by (+) and negative relationships denoted by (-). See text for explanation of assemblage and habitat measures.

Taxa	Measure	Drainage Area (km <sup>2</sup> )	Width (m)	Depth (m)	Max Depth (m)	Flow Velocity (m/s)	Q (m <sup>3</sup> s)	pH	Conductivity (uS)	DO (mg/L)	Temperature (°C)
<i>Fish</i>											
	Catch	+	+	+					+		
	CPUE	+		+					+		
	Richness	+	+	+			+				
	Diversity		+	+		+	+			+	
	%C	+	+	+		+	+				
	%G		—	—		—					
	%L		—								
	%E	+	+	+			+				
	%NE						+				
	%WS		—				—				
	%H			+				+	+		
	%I		+	+		+	+				
	%O		+	+		—	—				
	%P										
<i>Crayfish</i>											
	Catch									—	
	CPUE		—	—					+		
	Richness										
	Diversity							+			+
	CL	+	+	+			+		+		
	M:F	+	+	+				+	+		

Table S2. Cont.

Taxa	Measure	Drainage Area (km <sup>2</sup> )	Width (m)	Depth (m)	Max Depth (m)	Flow Velocity (m/s)	Q (m <sup>3</sup> s)	pH	Conductivity (uS)	DO (mg/L)	Temperature (°C)
<i>Macroinvertebrate</i>											
	Abundance										
	Diversity										
	Richness										
	EPT										
	CF	+					+				
	CG										
	PR										
	SC	+	+				+				+
	SH	—			—						
	%EPT										
	%CF	+	+				+				
	%CG										
	%PR										
	%SC										
	%SH							—	—		

**Table S3.** Insect taxa encountered during 2011 quantitative sampling. Taxa denoted with asterisks were only identified to sub-family.

<b>Order</b>	<b>Family</b>	<b>Genus</b>	
Coleoptera	Dryopidae	<i>Helichus</i>	
	Dytiscidae	<i>Hydroporus</i>	
	Elmidae	<i>Dubiraphia</i>	
		<i>Macronychus</i>	
		<i>Microcylloepus</i>	
	Gyrinidae	<i>Dineutus</i>	
	Psephenidae	<i>Psephenus</i>	
<i>Ectopria</i>			
Diptera	Athericidae	<i>Atherix</i>	
	Ceratopogonidae	<i>Atrichopogon</i>	
		<i>Bezzia</i>	
		<i>Ceratopogon</i>	
		<i>Culicoides</i>	
		<i>Forcipomyia</i>	
		<i>Probezzia</i>	
		Chironomidae	Tanypodinae*
			Chironominae*
			Orthocladinae*
		Culicidae	<i>Culex</i>
	Dixidae	<i>Dixa</i>	
	Empididae	<i>Chelifera</i>	
		<i>Clinocera</i>	
		<i>Hemerodromia</i>	
		<i>Simulium</i>	
	Simuliidae	<i>Prosimulium</i>	
		<i>Tabanus</i>	
	Tabanidae	<i>Tabanus</i>	
	Tipulidae	<i>Antocha</i>	
<i>Dicranota</i>			
<i>Hexatoma</i>			
<i>Leptotarsus</i>			
<i>Limnophila</i>			
<i>Prionocera</i>			
<i>Tipula</i>			
Ephemeroptera	Ameletidae	<i>Ameletus</i>	
	Baetidae	<i>Acerpenna</i>	
		<i>Baetis</i>	
		<i>Centroptilum</i>	
	Caenidae	<i>Caenis</i>	
	Ephemerellidae	<i>Attenella</i>	
<i>Ephemerella</i>			
	<i>Eurylophella</i>		

Table S3. Cont.

<b>Order</b>	<b>Family</b>	<b>Genus</b>
Ephemeroptera	Ephemerellidae	<i>Serratella</i>
		<i>Timpanoga</i>
	Ephemeridae	<i>Hexagenia</i>
		<i>Cinygmula</i>
	Heptageniidae	<i>Heptagenia</i>
		<i>Leucrocuta</i>
		<i>Maccaffertium</i>
		<i>Stenocron</i>
		<i>Isonychia</i>
		<i>Habrophleboides</i>
		<i>Leptophlebia</i>
Leptophlebiidae	<i>Paraleptophlebia</i>	
	<i>Tricorythodes</i>	
	<i>Tricorythidae</i>	
Hemiptera	Veliidae	<i>Rhagovelia</i>
Megaloptera	Corydalidae	<i>Corydalus</i>
		<i>Nigronia</i>
	Sialidae	<i>Sialis</i>
Odonata	Aeshnidae	<i>Boyeria</i>
	Calopterygidae	<i>Calopteryx</i>
	Coenagrionidae	<i>Argia</i>
	Cordulegastridae	<i>Cordulegaster</i>
	Corduliidae	<i>Macromia</i>
	Gomphidae	<i>Arigomphus</i>
		<i>Gomphus</i>
<i>Hagenius</i>		
Plecoptera	Peltoperlidae	<i>Progomphus</i>
		<i>Tallaperla</i>
	Capniidae	<i>Allocapnia</i>
		<i>Paracapnia</i>
		<i>Leuctra</i>
	Leuctridae	<i>Acroneuria</i>
		<i>Agneta</i>
		<i>Beloneuria</i>
		<i>Eccopectura</i>
		<i>Neoperla</i>
		<i>Perlesta</i>
Perlidae	<i>Perlinella</i>	

Table S3. Cont.

<b>Order</b>	<b>Family</b>	<b>Genus</b>
Trichoptera	Brachycentridae	<i>Brachycentrus</i>
	Glossosomatidae	<i>Agapetus</i>
		<i>Glossosoma</i>
	Helicophyschidae	<i>Helicopsyche</i>
	Hydropsychidae	<i>Cheumatopsyche</i>
<i>Diplectrona</i>		
<i>Hydropsyche</i>		
Trichoptera	Hydroptilidae	<i>Anisocentropus</i>
		<i>Hydroptila</i>
		<i>Ochrotrichia</i>
		<i>Lepidostoma</i>
	Lepidostomatidae	<i>Lepidostoma</i>
	Leptoceridae	<i>Oecetis</i>
	Limnephilidae	<i>Pycnopsyche</i>
	Odontoceridae	<i>Psilotreta</i>
	Philopotamidae	<i>Chimarra</i>
		<i>Dolophilodes</i>
		<i>Wormaldia</i>
		<i>Cyrnellus</i>
	Polycentropidae	<i>Neureclipsis</i>
		<i>Phylocentropus</i>
<i>Polycentropus</i>		
<i>Lype</i>		
Psychomiidae	<i>Lype</i>	
Rhyacophilidae	<i>Rhyacophila</i>	
Sericostomatidae	<i>Fattigia</i>	