

A COMPARISON OF THE RIFFLE-DWELLING BENTHIC MACROINVERTEBRATE COMMUNITY OF THE UPPER BLUE RIVER AND AN ADJOINING SPRING RUN

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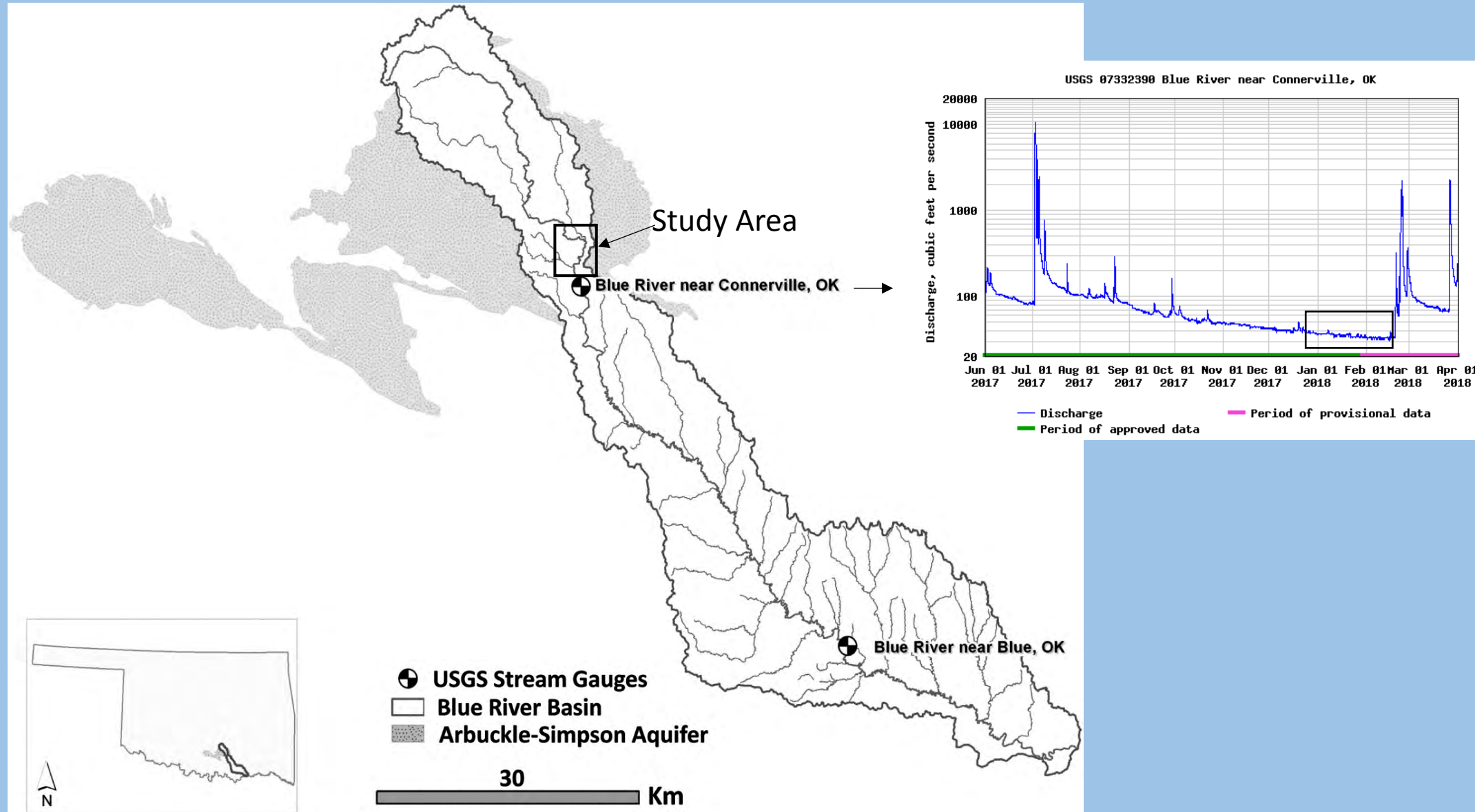
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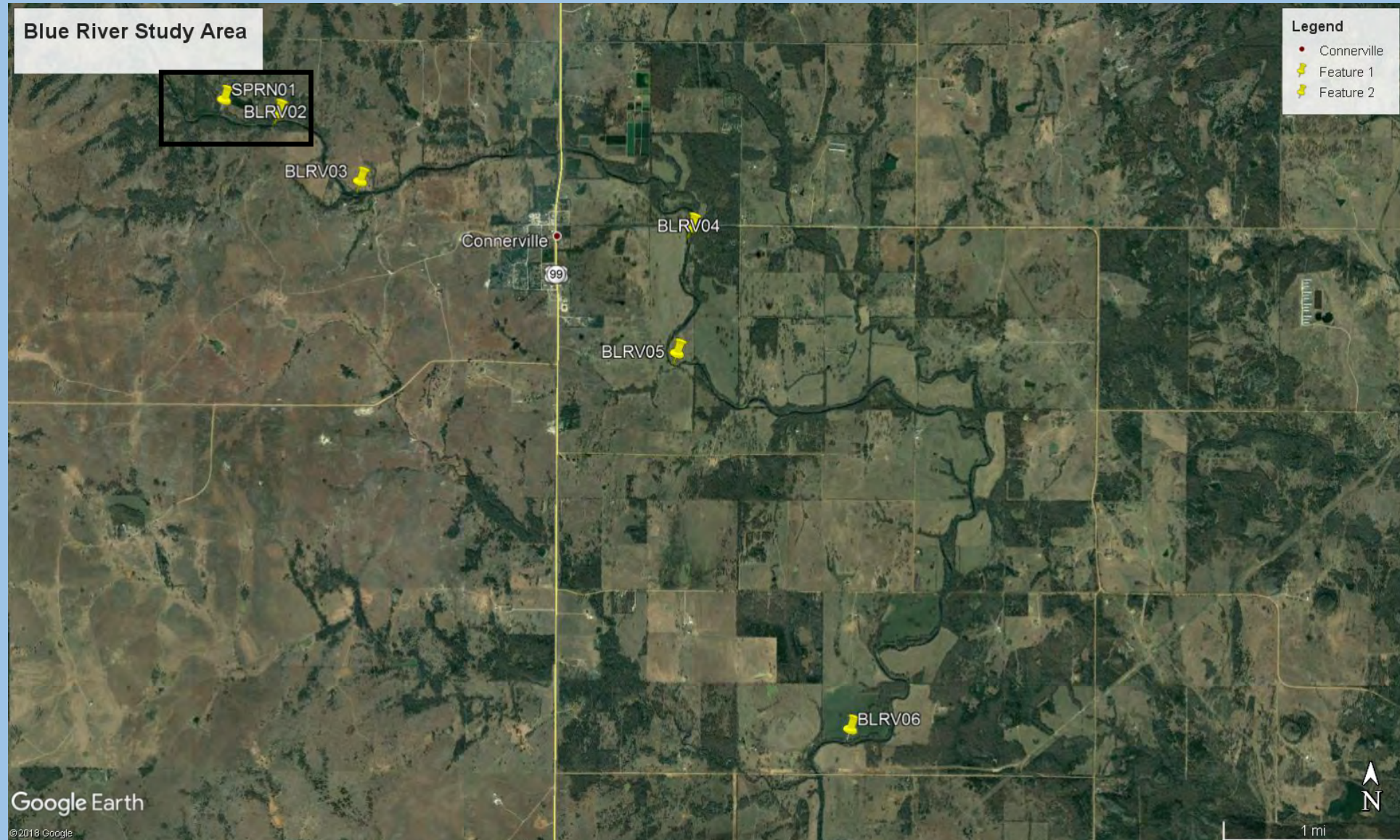
Overall Objectives of the Study

- Determine the structure and composition of the riffle-dwelling benthic macroinvertebrate community in a reach of the upper Blue River.
- Inform the selection of one or two sites for a flow-ecology study of riffle mesohabitats in the upper Blue River.
- Compare the structure and composition of the Blue River benthic macroinvertebrate community to the community of an adjoining spring run.

Setting



Blue River Study Area



Study Sites

- Spring Run (SPRN01)
- Blue River (BLRV02)



Study Sites



Blue River upstream of TNC's Oka' Yanahli
West Preserve (BLRV02)



Spring Run (SPRN01) upstream of BLRV02

Why riffles?

Approach

Benthic Macroinvertebrates

- Collected two types of samples to characterize the community.
- Quadrat and **traveling-kick** sample collection.



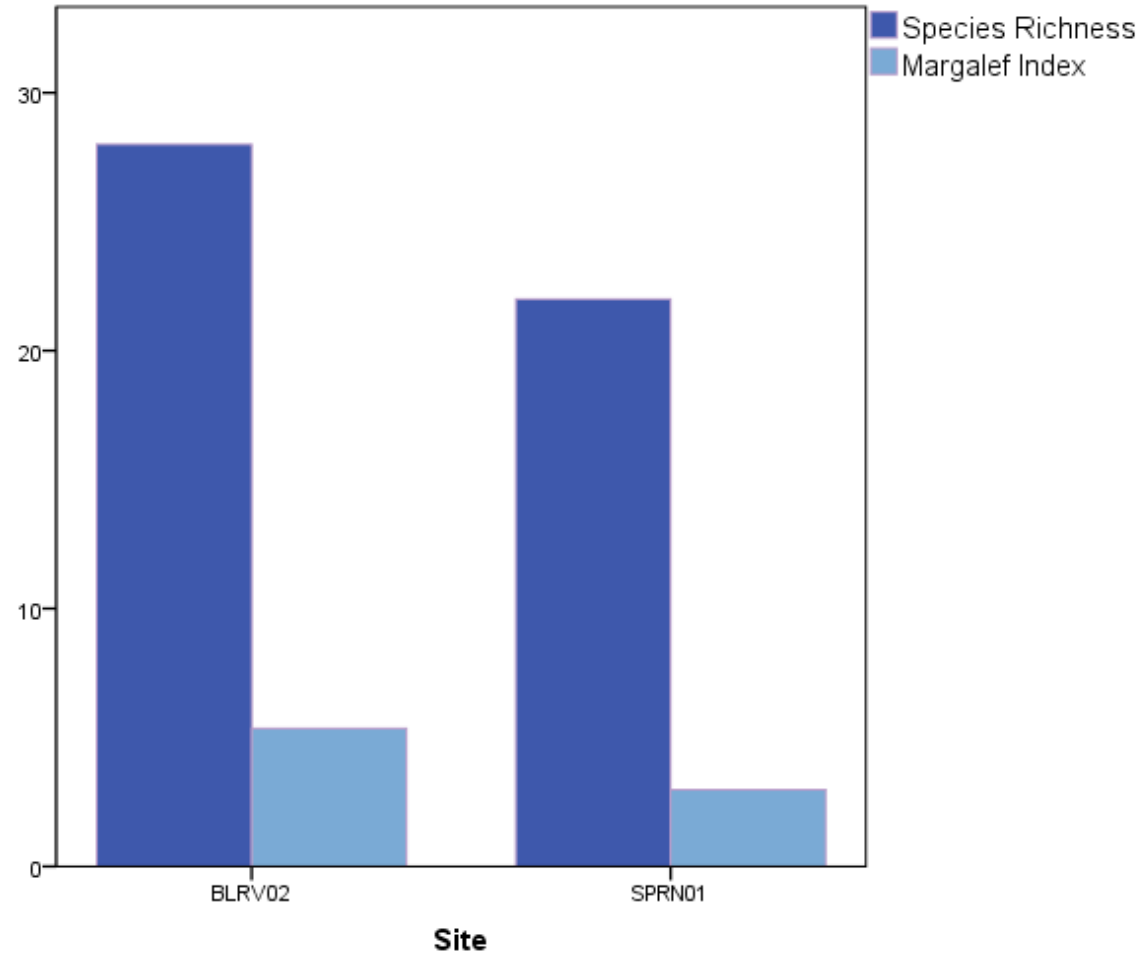
Quadrat Sampling



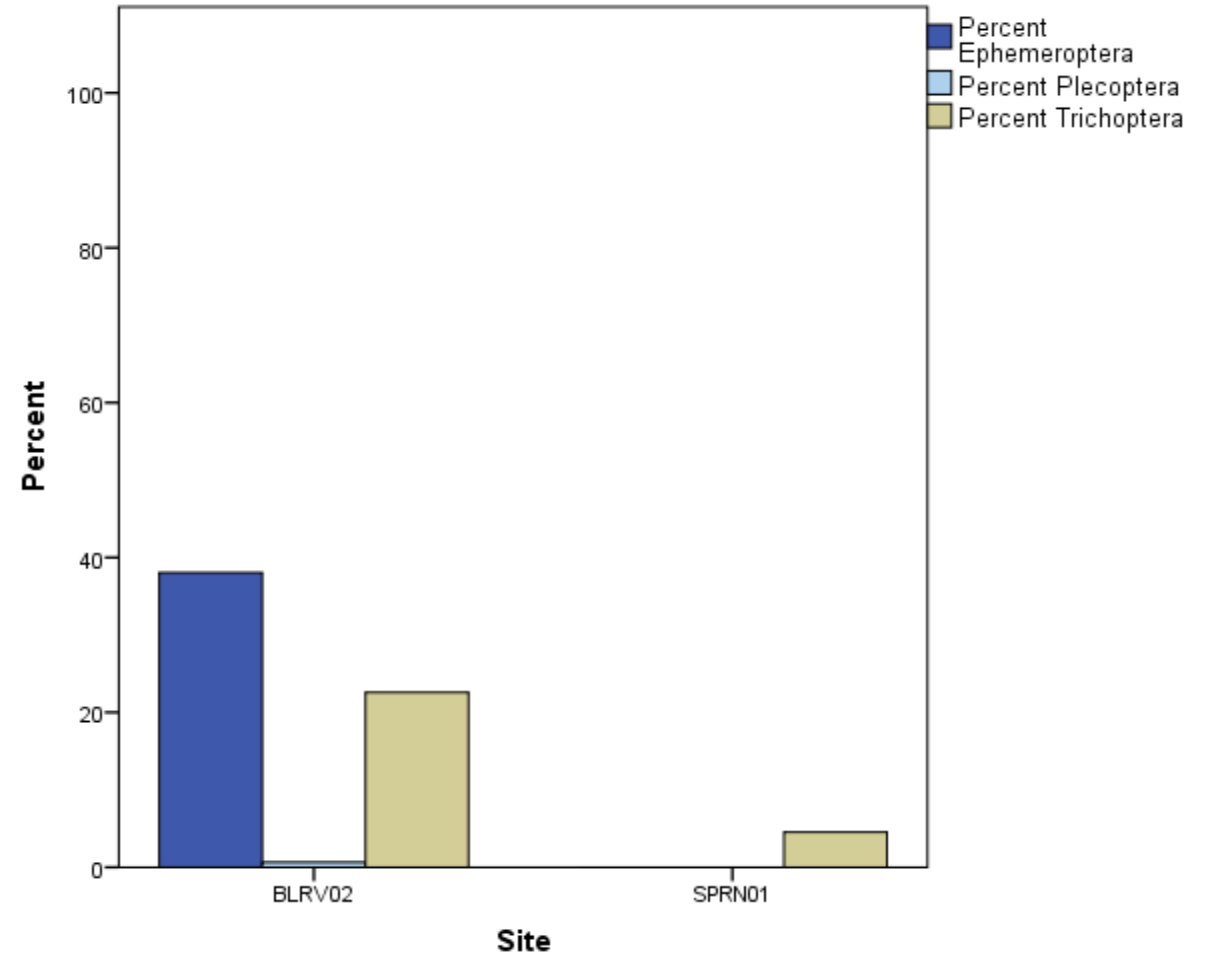
Traveling-kick Sampling

Community Structure

Entire Benthic Macroinvertebrate Community



Insects Only: EPT



Dominant Taxa of the
Insect Community

Taxa	BLRV02	SPRN01
Ephemeroptera	Rank Abundance	Rank Abundance
<i>Trocorythodes</i> sp.	1	
<i>Isonychia</i> sp.	2	
<i>Baetis flavistraga</i>	3	
<i>Leucrocuta</i> sp.	4	
<i>Neochoreterpes</i> sp.	5	
<i>Fallceon</i> sp.	6	
<i>Maccaffertium</i> sp.	7	
<i>Caenis lattipensis</i>		2
Plecoptera		
<i>Neoperla</i> sp.	7	
Trichoptera		
<i>Helicopsyche</i> sp.	1	1
<i>Hydropsyche morosa</i>	2	
<i>Cheumatopsyche</i> sp.	3	
<i>Chimarra</i> sp.	4	

BLRV02 (Blue River site)



Neoperla (stonefly nymph)

SPRN01 (Spring run site)



Ceanis lattipensis (mayfly larva)



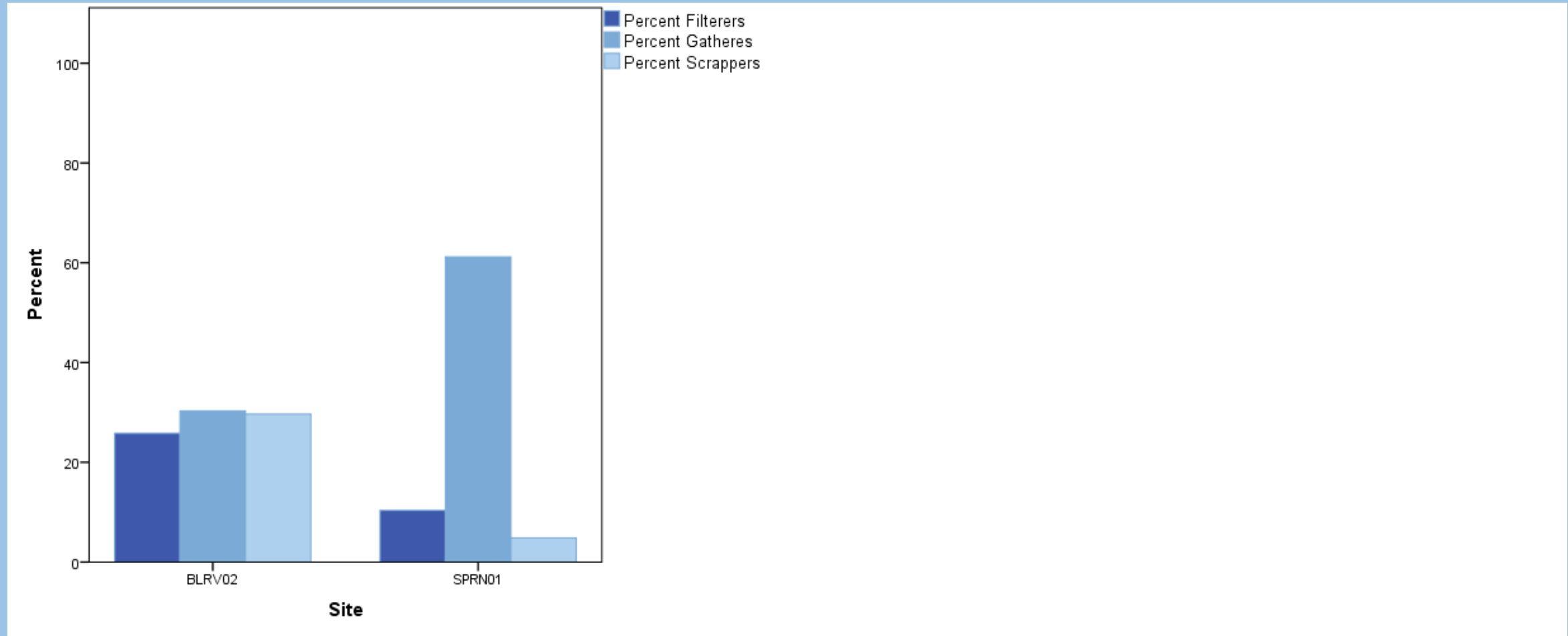
Tricorythodes (mayfly larva)



Helicopsyche (caddisfly larva)

Trophic Structure of Riffle Insect Community

Structure: Functional Groups



Insects: Functional Feeding Groups

Taxa	BLRV02	SPRN01
Filterers	Rank Abundance	Rank Abundance
<i>Hydropsyche</i> sp.	1	
<i>Cheumatopsyche</i> sp.	2	
<i>Chimarra</i> sp.	3	
Gatherers		
<i>Baetis flavistraga</i>	3	
<i>Neochoreterpes</i> sp.	5	
<i>Caenis laticarpus</i>		2
Scrappers		
<i>Helicopsyche</i> sp.	1	1
<i>Leucrocuta</i> sp.	4	

Silk mesh of net-spinning caddisfly larva



Hydropsyche larva



Baetis larva

Conclusions and Next Steps

- The higher insect taxa richness in the river is consistent with expectations for a higher-order stream---the Blue River---compared to a lower-order stream---the spring run.
- The riffle insect community of the spring run is more depauperate compared to the river---also consistent with a lower order (1st order) spring run compared to a higher order (3rd order) stream.
- Riffles of the spring runs most likely do not provide a refugia for the dominant aquatic insect taxa from riffles of the upper Blue River.
- Collect in more spring runs in the upper Blue River watershed with more extensive sampling of all mesohabitats---not just riffles.



Questions?