



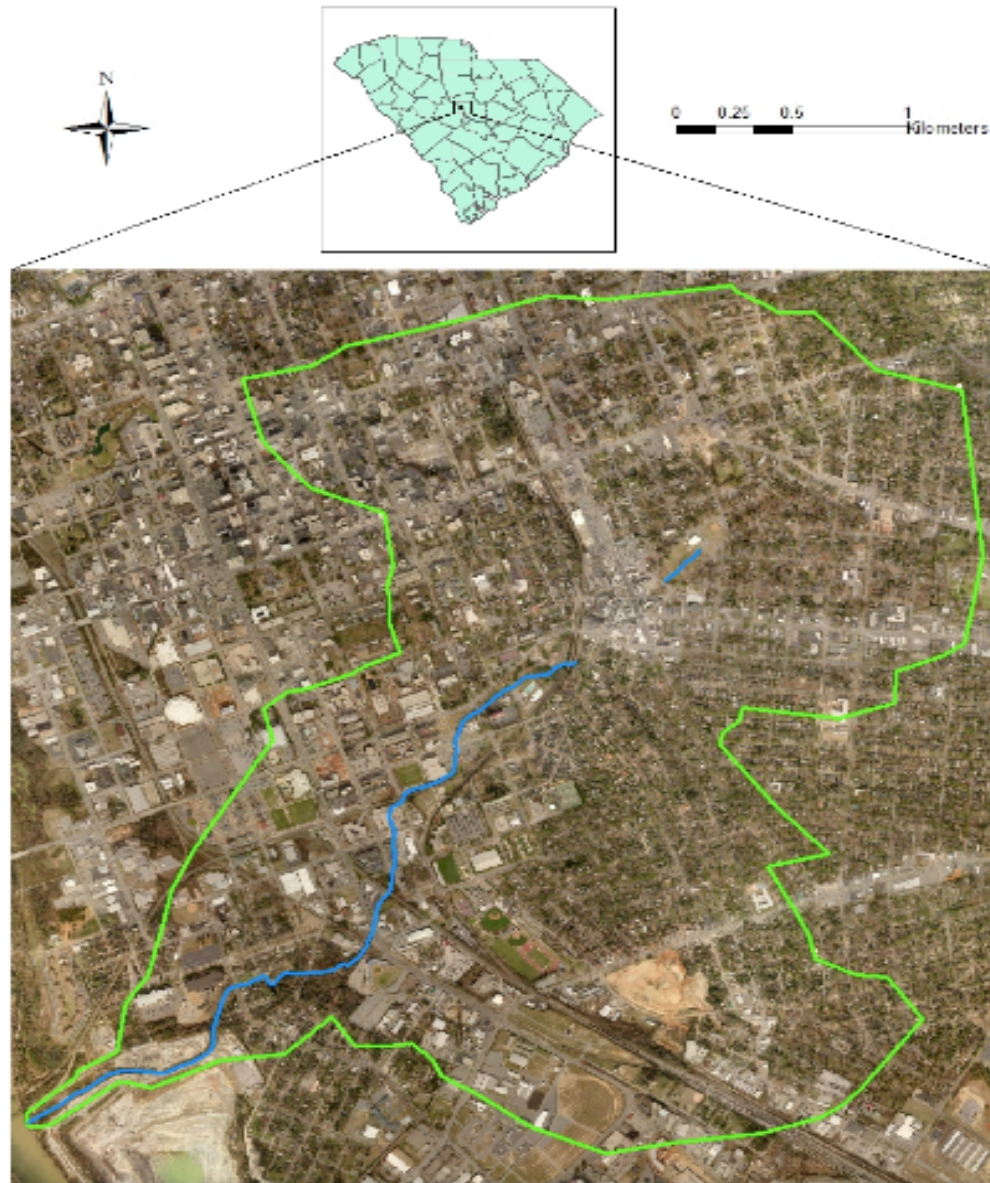
A Macroinvertebrate  
Bioassessment of  
Rocky Branch Creek

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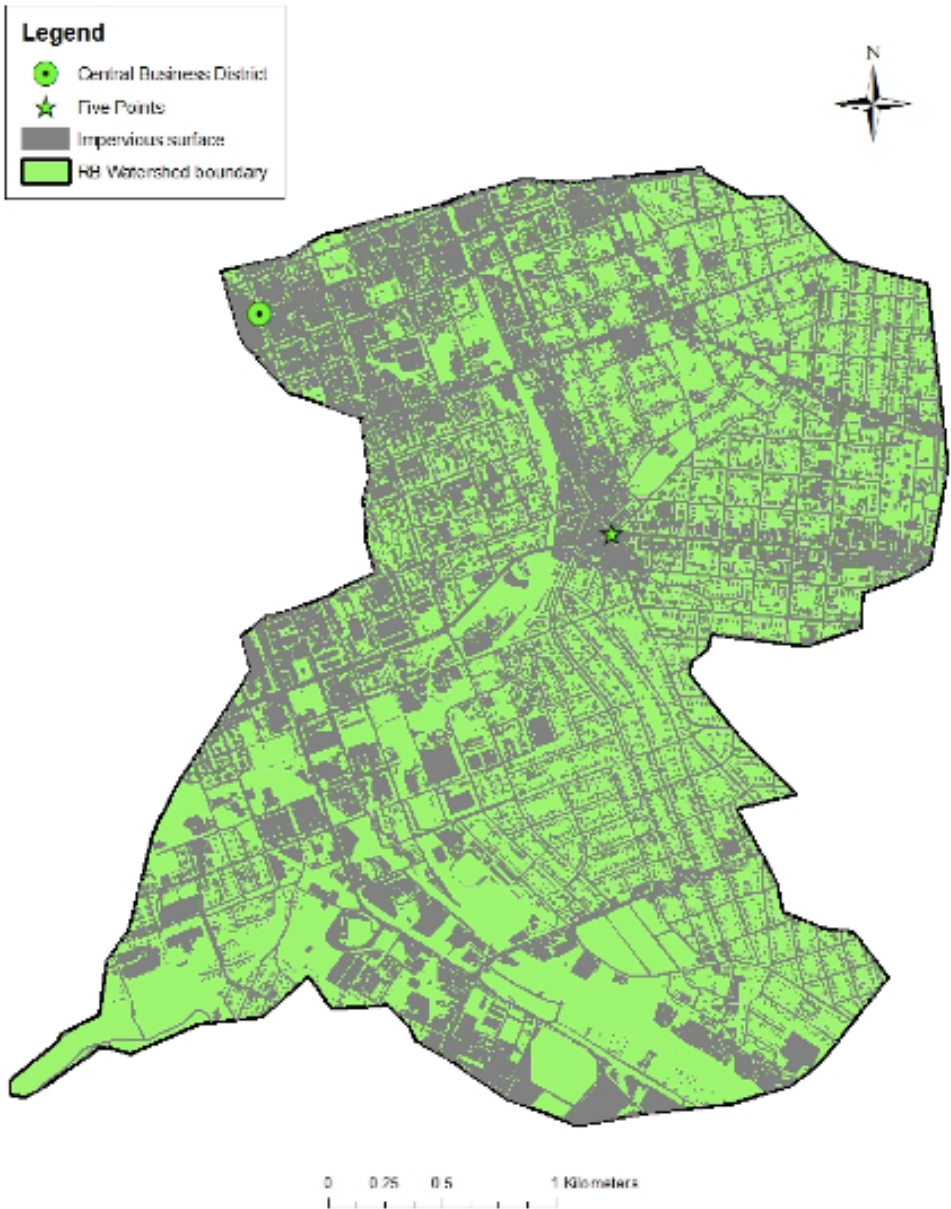
# Rocky Branch Watershed



-Brief History



# Imperviousness of Rocky Branch



-Impervious surface's effect on urban streams

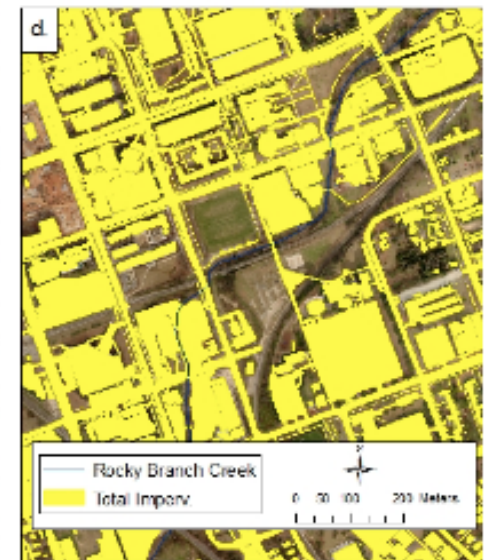
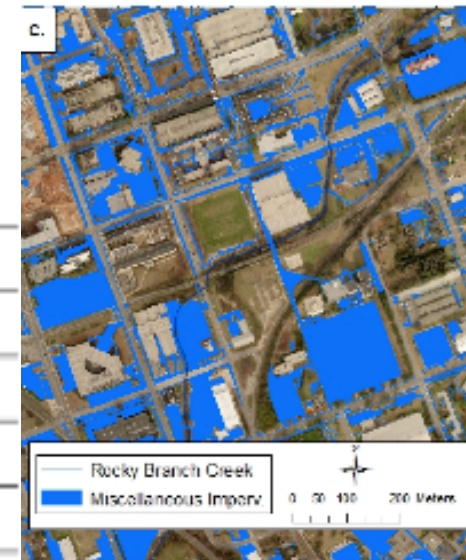
- Physical
- Chemical
- Biological

-Connection to stream biota

# Wooten's Thesis

-Main Findings

-What this means for Rocky Branch



Surface Area Type	Area (m <sup>2</sup> )	Percent of Total Area
Roads	1,430,850	13.8%
Buildings	1,591,294	15.4%
Misc.	2,052,059	19.9%
<b>Total Impervious</b>	<b>5,074,202</b>	<b>49.1%</b>
Non-impervious	5,258,293	50.9%

# Visual Effects



-Mission

-Availability of Rocky  
Branch Data

-Historically/Present

-Importance of data

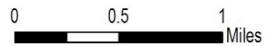
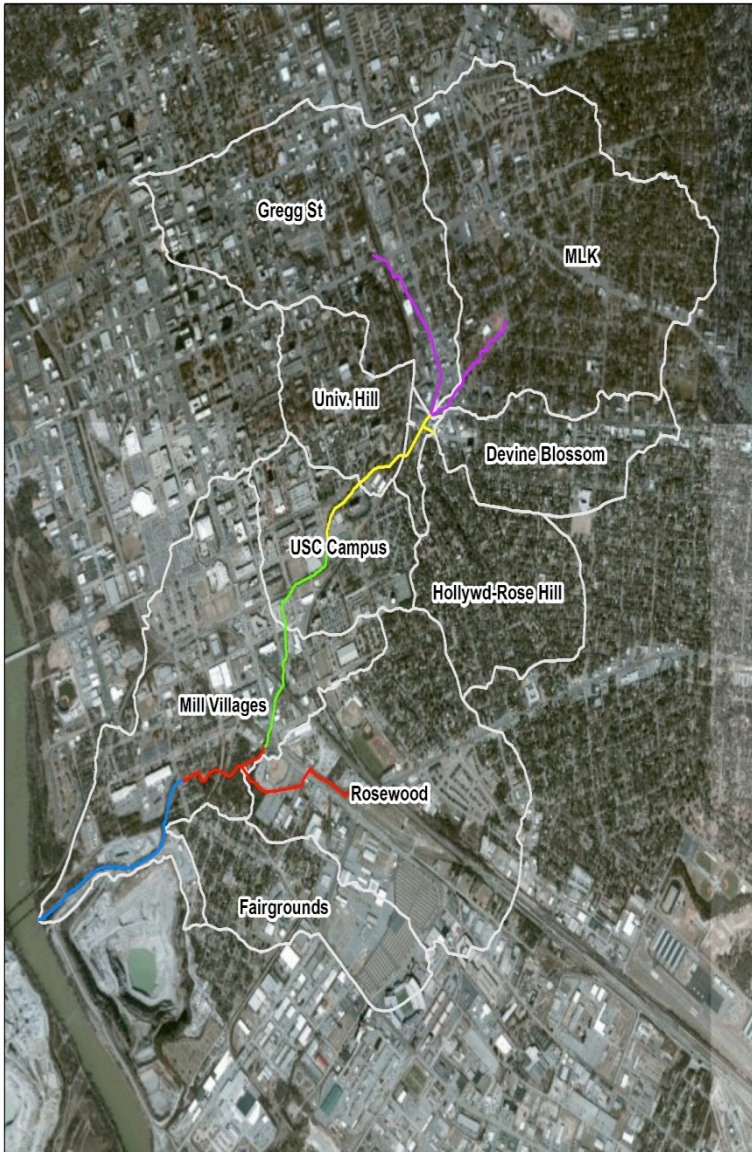
-Our group's contribution



# Macroinvertebrate Importance & Advantages

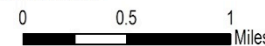
- Indicators of overall aquatic ecosystem health
- Early indicator to stress within aquatic environment
- Useful in studying impacts of urbanization
- Advantages
  - Lack of mobility
  - Surviving a flood event
  - Widespread compatibility
  - Ease of access and availability of identification charts
  - Affordable compared to other tests

### Rocky Branch Watershed Bioassessment Stream Sections



- Olympia to Mouth
- Stadium
- Sumter to Assembly
- Maxcy Gregg
- MLK
- Subwatersheds

### Rocky Branch Watershed Bioassessment EPT Totals



- MLK, 0; Maxcy Gregg, 0; Stadium Branch, 0
- Stadium Main, 25
- Sumter, 53
- Olympia, 55
- Subwatersheds

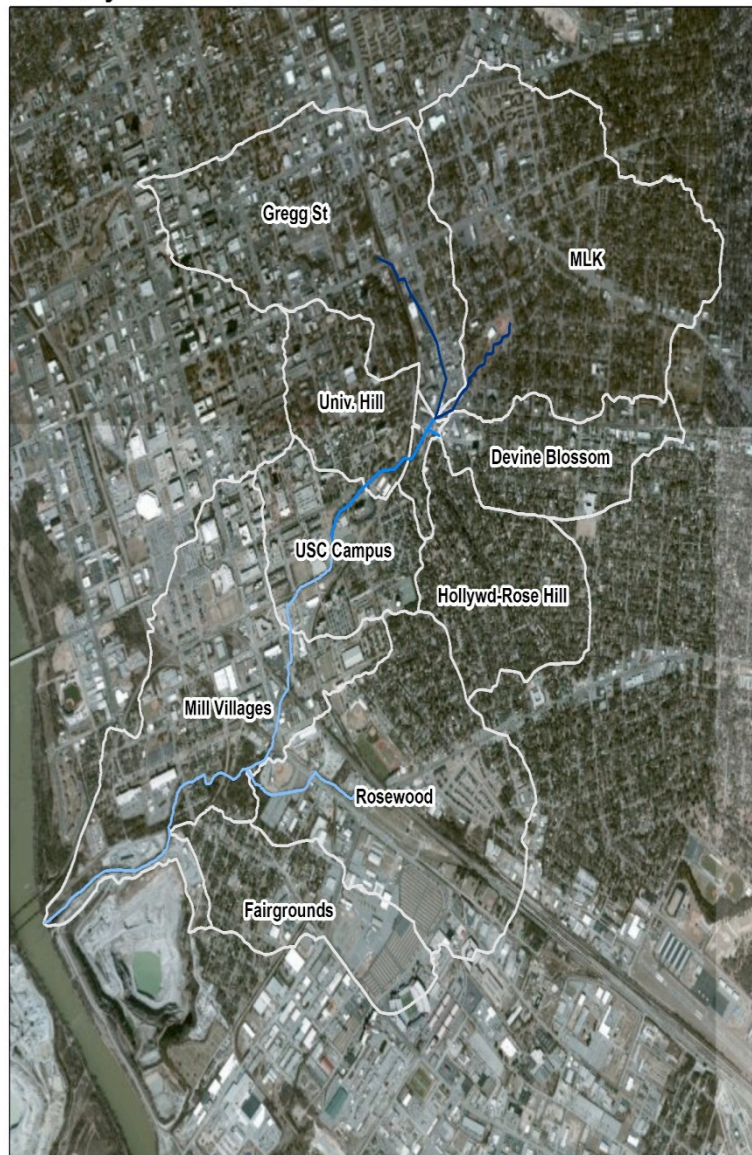


### Rocky Branch Watershed Bioassessment Total Specimens



Stadium Branch, 0    Stadium Main, 35    Olympia, 89  
 Maxcy Gregg, 22    MLK, 69    Sumter, 95  
 0    0.5    1 Miles    Subwatersheds

### Rocky Branch Watershed Bioassessment Worm Totals



Olympia, 0; Stadium Branch, 0; Stadium Main, 0; Sumter, 0    MLK, 67  
 Maxcy Gregg, 15    Subwatersheds

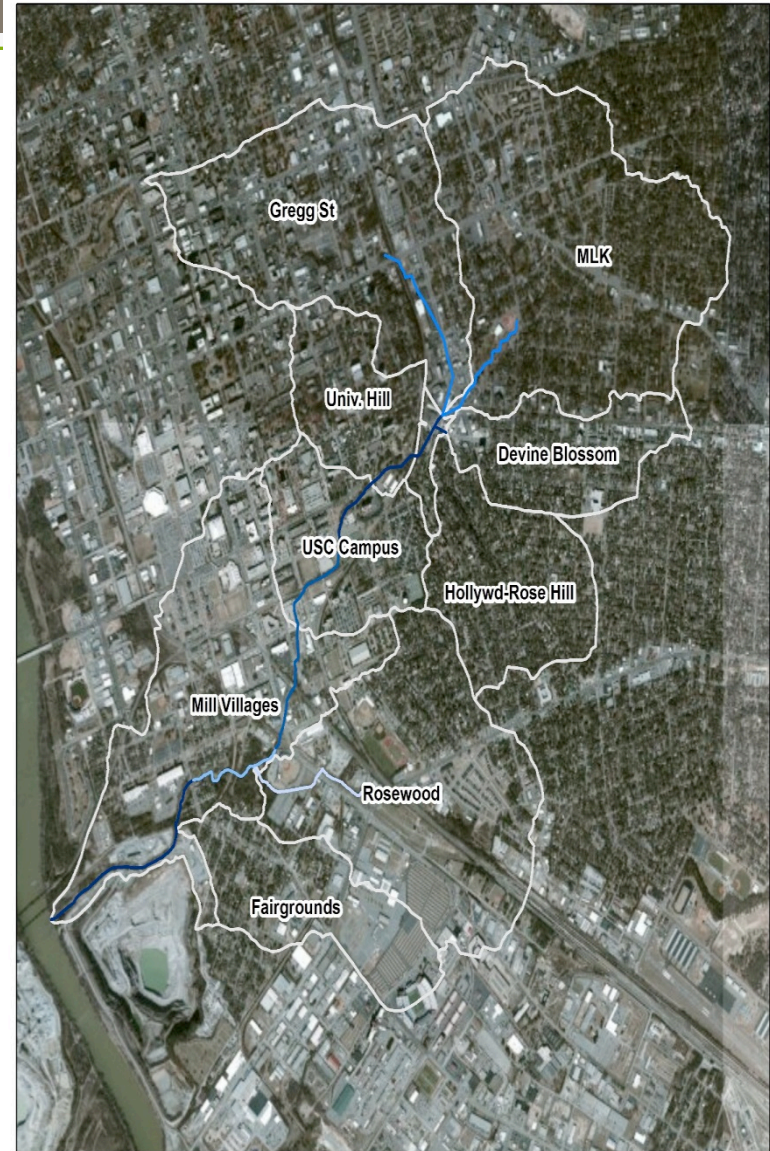
## Rocky Branch Watershed Bioassessment EPT Values



— MLK, 0; Maxcy Gregg, 0; Stadium Branch, 0 — Olympia, 2  
— Stadium Main, 1; Sumter, 1  Subwatersheds

0 0.5 1 Miles

## Rocky Branch Watershed Bioassessment Specimen Types



— Stadium Branch, 0 — MLK, 3 — Maxcy Gregg, 6; Olympia, 6  
— Stadium Main, 2 — Sumter, 4  Subwatersheds

0 0.5 1 Miles

# Varying Habitats

- Sediment and deep pools
  - Dominant habitat of MLK and Maxcy Gregg
  - Worms
- Rocks and shallow riffles
  - Throughout downstream sections
  - EPT species

# Methodology



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# The EPT Paradigm

- Function as bellweather species
- Globally distributed, easy to collect
- More valuable than measures of overall species abundance
- Sensitive to plethora of environmental factors
  - An indicator of overall health
  - More difficult (though very possible) to tie levels to specific factors





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# Spatial Considerations

- Does RBC's small size limit the fidelity of our results?
- Generally, factor-EPT relationships are defined for large watersheds or regions
  - Timescale is also important

# Data limitations

- Single sampling event
- Short timeframe
- Low numbers limit statistical analysis
  - Ideally would see numbers 1-2 orders of magnitude larger
  - Many potential factors involved
- Small watershed size

# Conclusions

- Bioassessment findings are consistent with those of a heavily impaired stream
- RBC size may limit the degree to which we can establish causal impairment relationships, especially on a short timescale
- Several minor “irregularities” were noted during our assessment that bear further investigation

# Future needs

- Replicated assessment
- More precise methods and tools
- Identification at more specific taxonomic levels
- Cross-referencing with water quality, land use, and other data sets



Questions?