# AQUATIC MACROINVERTEBRATES AND REGION 7 SUPERFUND SITES

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Ecological Risk Assessors

# Aquatic Macroinvertebrates

- Can be found in all streams
- Are sampled by every state for their water program
- A lot of information exists for aquatic invertebrate pollution tolerance
- Macroinvertebrates can help answer aquatic questions at your sites

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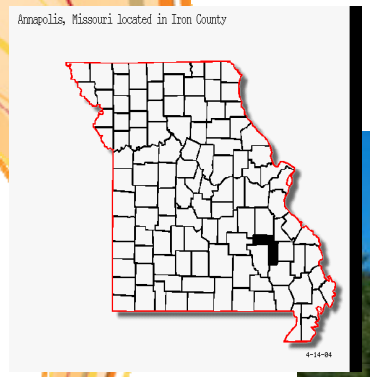
# Annapolis Lead Mine Site
# Annapolis, Missouri
# Approximately 10 acres




# Sutton Branch Creek at the Mine Waste Entry Point

# Big Creek, a Missouri Outstanding Natural Resource Water

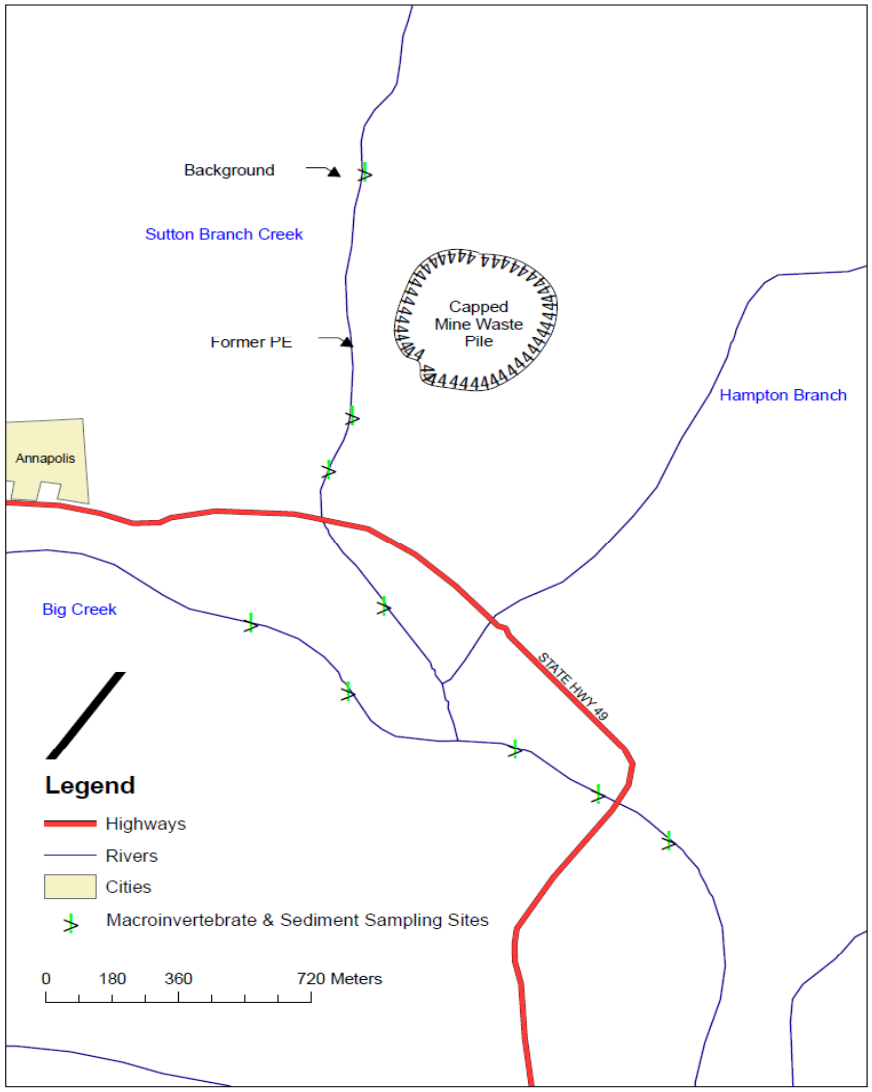



Figure 1. Macroinvertebrate & Sediment Sampling Locations, Annapolis Lead Mines Site, EPA, 2005.

# %EPT for Sutton Branch Creek Below Point of Entry

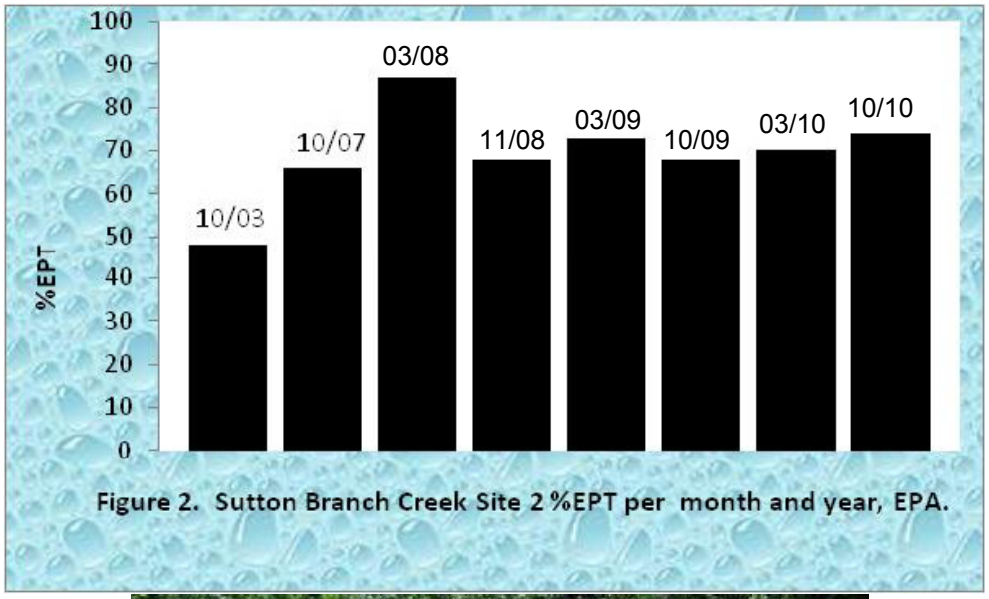
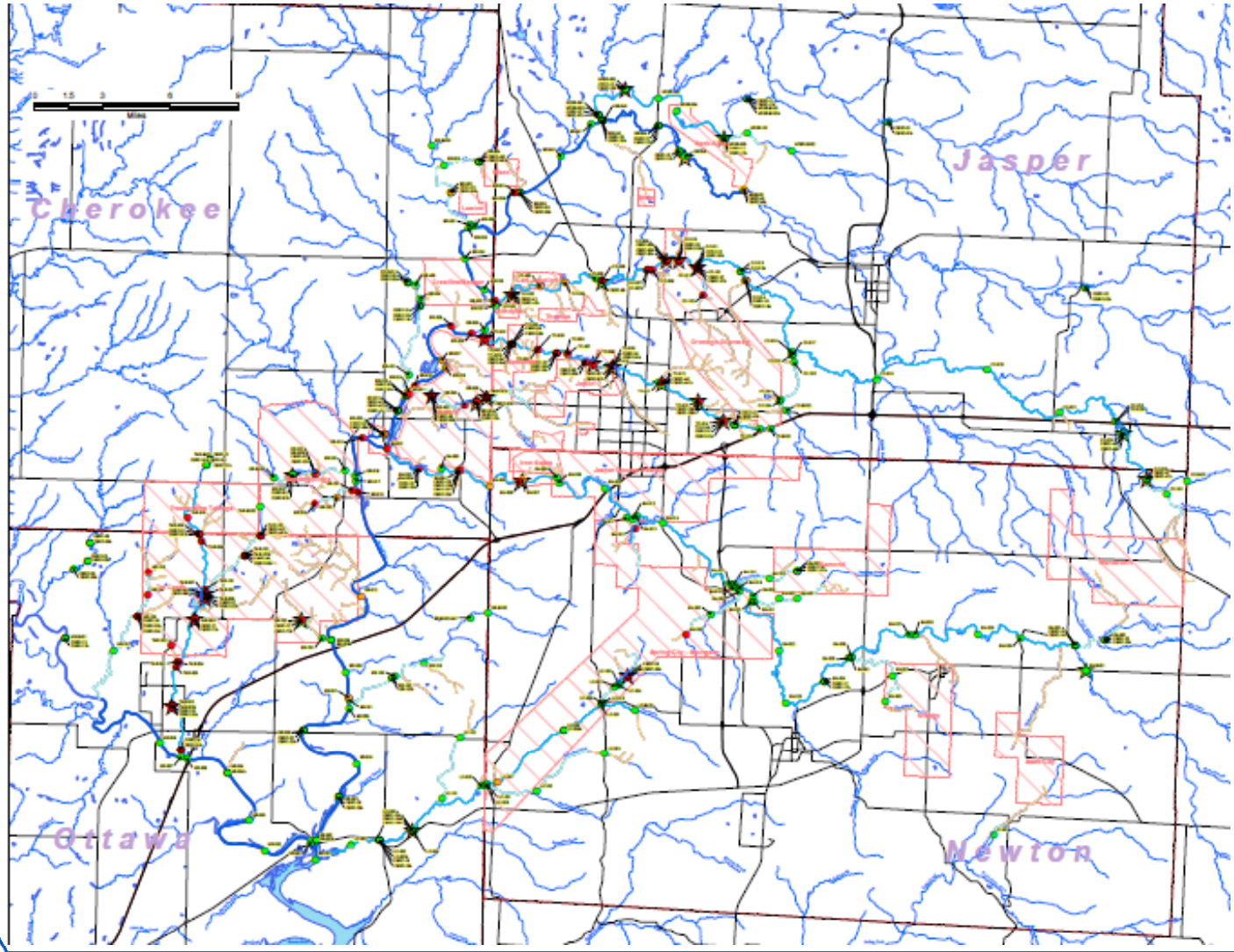



Figure 2. Sutton Branch Creek Site 2 %EPT per month and year, EPA.

# Tri-State Mining Site, Missouri, Kansas, and Oklahoma
# Approximately 2,500 square miles

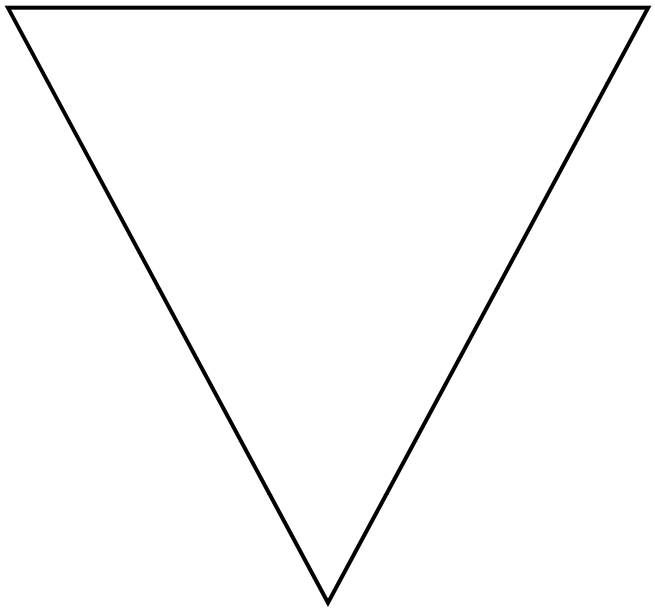

Fig 2: Tri-State Mining District Study Area

# Large Rivers, Small Streams, and A Lot of Tributaries



# Sediment Quality Triad Approach

Chemistry Concentrations
- Sediment
- Pore water
- Surface water



Toxicity Studies
- Sediment

Site Specific Macroinvertebrate Community Studies
- Richness
- Ephemeroptera, Plecoptera, Trichoptera (EPT)

# Mean Taxa Richness per Waterbody

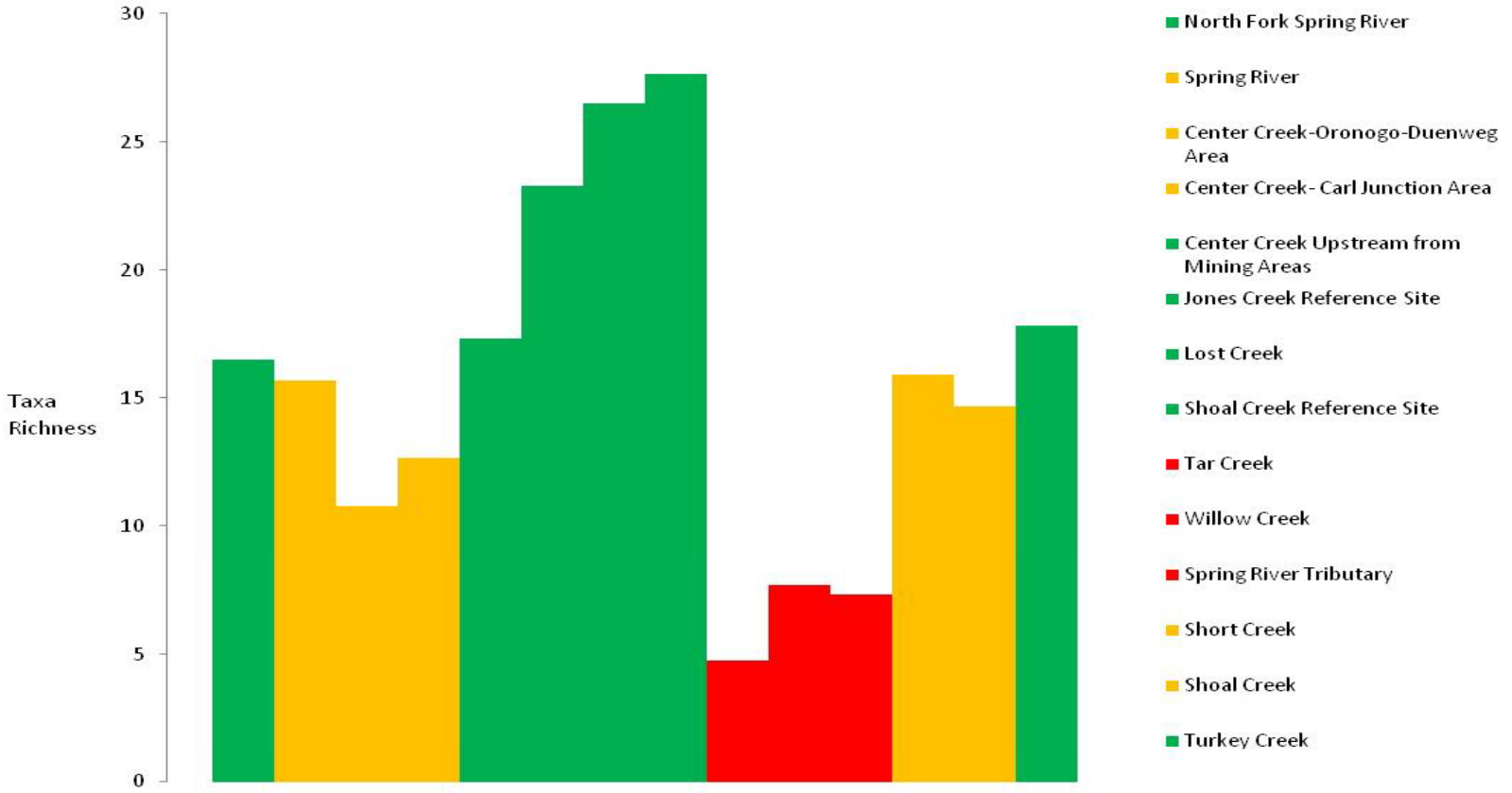
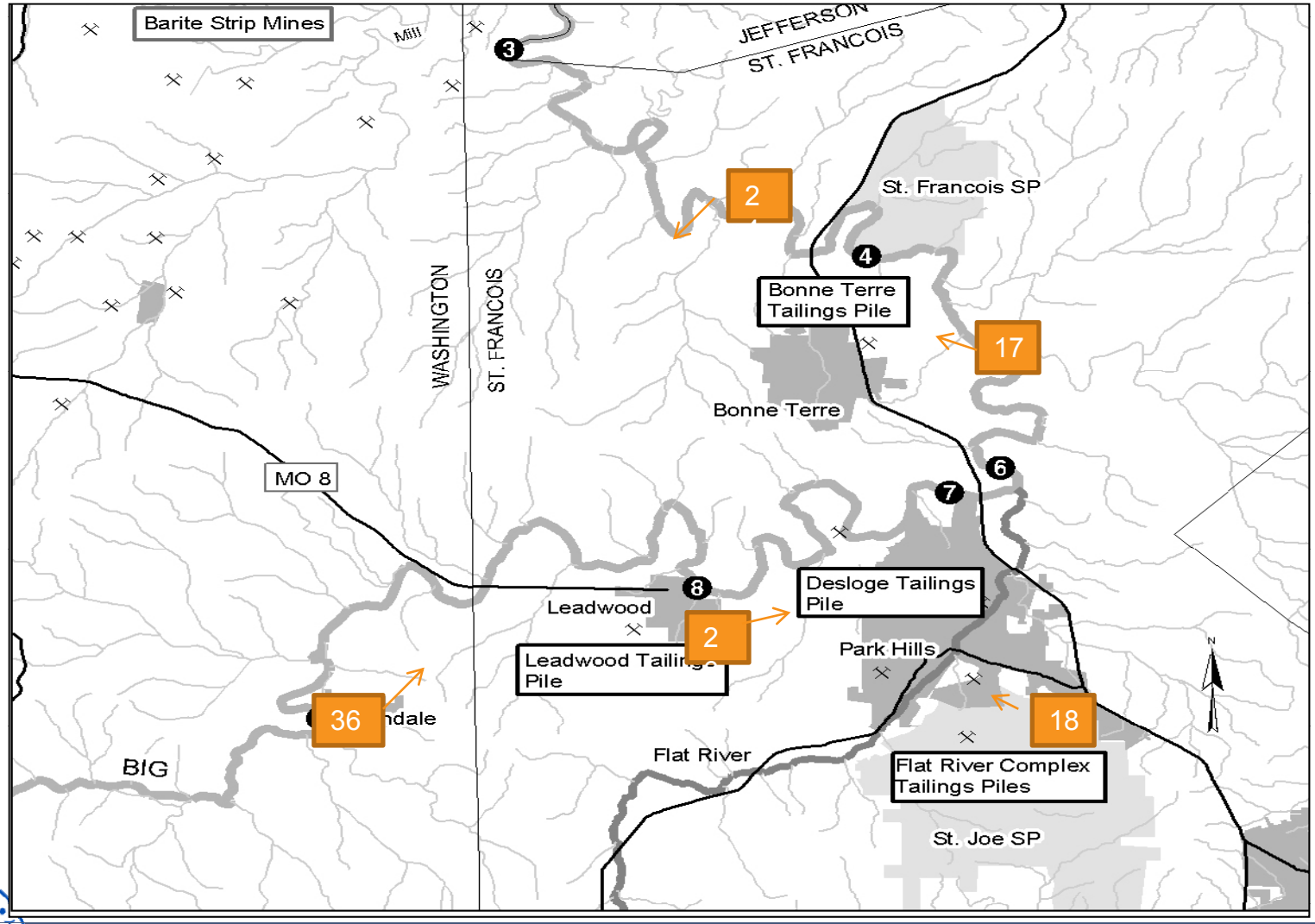



Figure 5. Mean taxa richness per creek from macroinvertebrate samples collected by the EPA, June 2009. Richness 0-7 in red is considered poor, 8-15 in yellow is fair, and >16 in green is good.

# Big River Ecological Assessment

# Species Richness – Big River through Mine Tailings



# Big River – Results and Conclusions

Table 6-13: Macroinvertebrate Survey Results.

| Site Metric | BR04 | BR10 | BR25 | BR26 | BR32 | BKG11 | FL09 |
|---|---|---|---|---|---|---|---|
| Richness | 24 | 17 | 26 | 26 | 36 | 36 | 18 |
| EPT Index | 4.6 | 3 | 5.2 | 4.8 | 6.2 | 8.6 | 3 |

- Using an HI value based on the Probabl y Effect Concentrations, excellent taxa richness and good EPT Indices are found at $HI_{PEC}$ values below 5.
- Good to excellent species richness and acceptable to good EPT Indices were found at $HI_{NAWOC}$ values below 1.5.

# Thank You!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