

# Dominant Species & Fly Imitations

Lepidostoma (Little Brown Sedge)



Chironimidae (Midge)



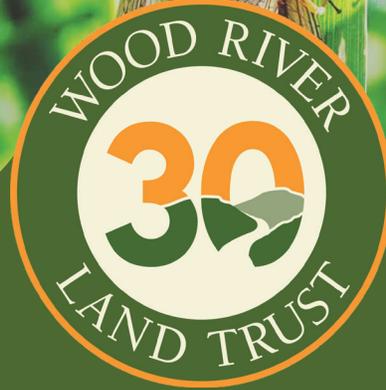
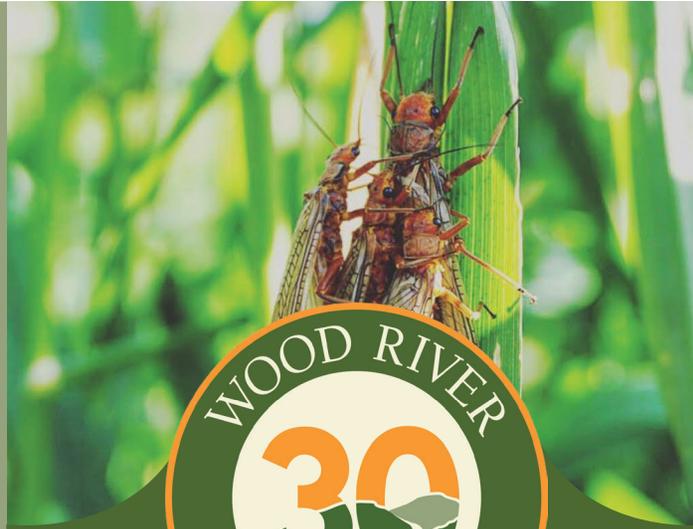
Optioservus (Riffle Beetle)



Naididae (Aquatic Worm)



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BIG WOOD RIVER  
AQUATIC INSECT TREND  
MONITORING



An Assessment of Some Important  
Ecological Metrics Indicative of Water  
Quality

2022-2024

Since 2022, **The Wood River Land Trust** has been monitoring tiny aquatic insects — called macroinvertebrates — at six sites in the Wood River Basin. These tiny creatures serve as natural indicators of water quality and ecosystem health, helping us to track the health of our watershed over time and take action when conditions shift off course.

The 2024 results were consistent with what we've seen: water quality is highest at the upper elevations near the Sawtooth National Recreation Area (SNRA) but declines as the river flows downstream and land use shifts from wilderness to developed and agricultural areas – reinforcing the importance of community efforts to help improve water quality.

### Site Specific Findings

BELOW MAGIC RESERVOIR	Fewer types of aquatic insects, including sensitive species like mayflies, stoneflies, and caddisflies, were found in 2023 and 2024.	Negative
STANTON'S CROSSING	Water quality improved significantly in 2024, with a decline in species like midges and worms, which thrive in more polluted environments	Positive
HAILEY	Overall, the health of this segment of the river remained healthy	Positive
EAST FORK	Signs of slight improvement in 2024, including increase in sensitive species like mayflies, stoneflies, and caddisflies	Positive
WARM SPRNGS	Significant improvements in 2024, with a notable increase in the diversity of pollution-sensitive species	Positive
SAWTOOTH NATIONAL RECREATION AREA	Average values of all metrics were consistently reflective of good water quality and habitat quality.	Excellent

SITE	DRAINAGE (KM <sup>2</sup> )	ELEVATION (m)
BELOW MAGIC	3901	1424
STANTON'S CROSSING	1937	1472
HAILEY	1590	1614
EAST FORK	223	1701
WARM SPRINGS	166	1777
SAWTOOTH NATIONAL RECREATION AREA	355	1902

## The Role of Insects in Stream Ecosystems

Aquatic insects play a crucial role in freshwater ecosystems by linking primary producers, such as algae and plants, with higher-level consumers like fish, birds, and amphibians. They help break down organic matter and serve as a primary food source for many aquatic predators, making them essential for energy transfer within the ecosystem.

The diversity of aquatic insects supports the health, stability, and resilience of rivers and streams, benefiting both aquatic life and surrounding environments. Beyond being a food source for fish, these insects contribute to ecosystem functions such as nutrient cycling and organic matter decomposition.

Because they are highly sensitive to environmental changes, aquatic insects are often used by scientists to assess the health of freshwater ecosystems. By studying their presence, abundance, and diversity, researchers can track changes in water quality and overall ecosystem function over time.



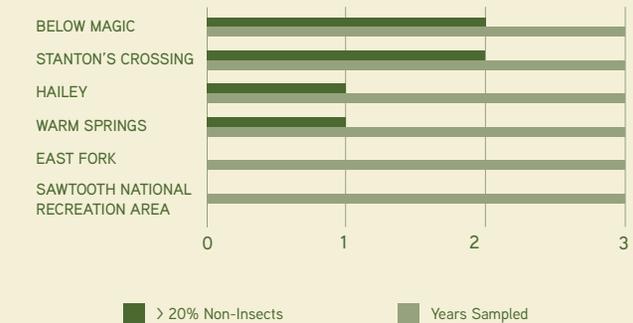
## Supplementary Figures

### Numbers of Years with Below Average Sensitive Species (EPTs)



EPT = EPHEMEROPTERA, PLECOPTERA, TRICHOPTERA (Mayfly, Stonefly, Caddisfly)

### Number of Years with High Average Pollutant-Tolerant Species (e.g., leech, snail, worm)



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