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Macro Invertebrates of Kirby Brook

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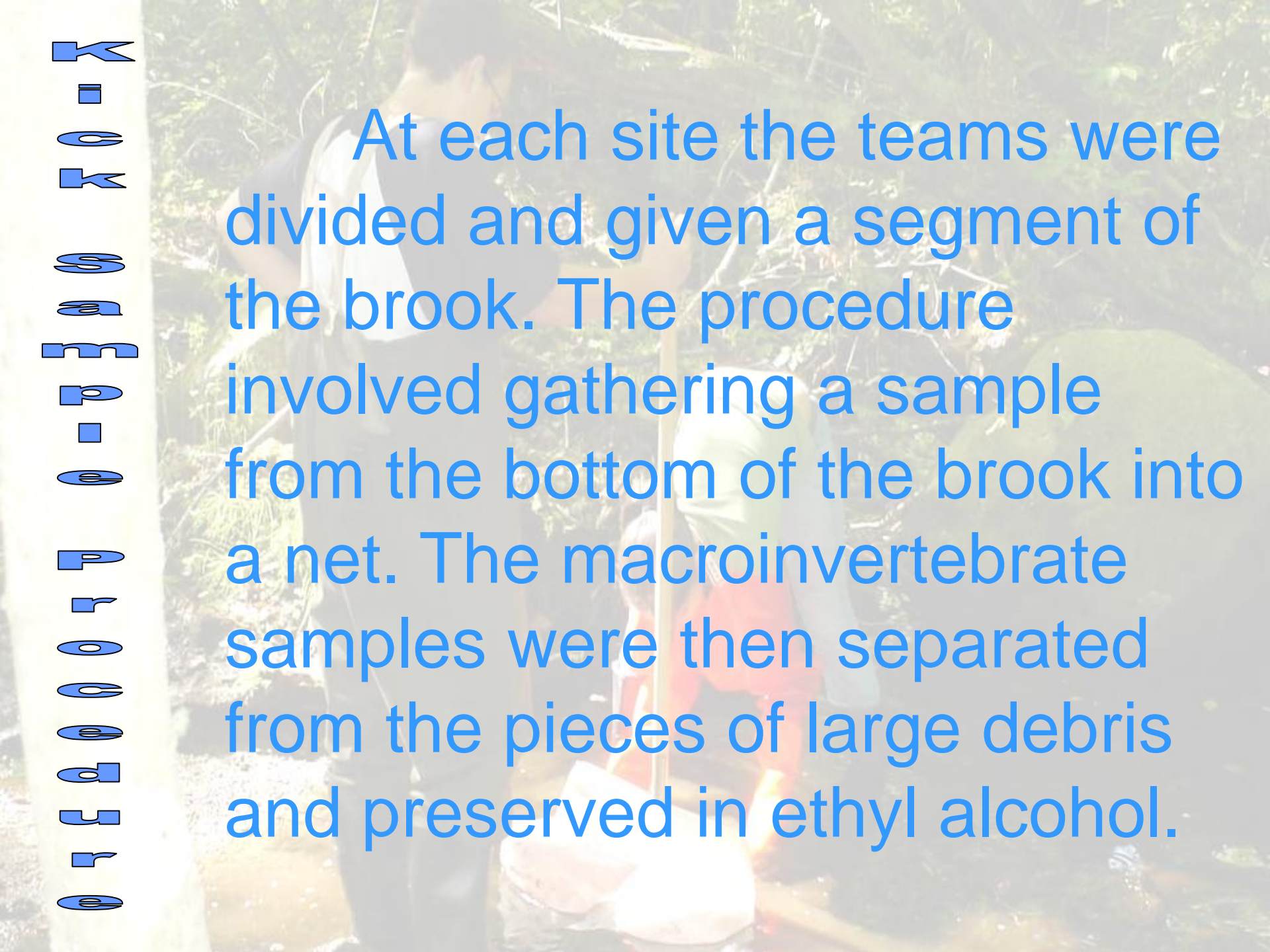
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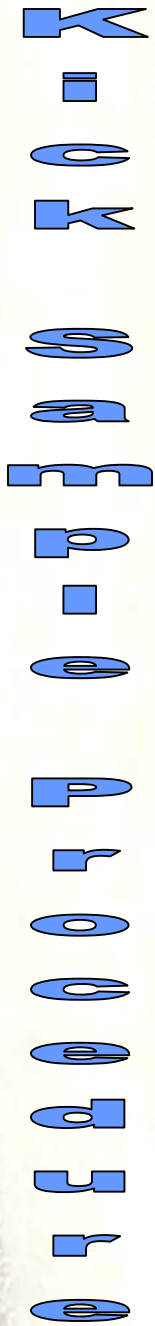
Macro Invertebrates of Kirby Brook

This is
WHS



A person wearing a backpack and a hat is standing in a field, holding a long pole with a net attached. The background is a dense, green, brushy area. The text is overlaid on this image in a blue, sans-serif font.

At each site the teams were divided and given a segment of the brook. The procedure involved gathering a sample from the bottom of the brook into a net. The macroinvertebrate samples were then separated from the pieces of large debris and preserved in ethyl alcohol.



HIGH SCHOOL KICK SAMPLE

John
Machairas
holds up the
net, while
Graham
Huntington
picks out the
rocks



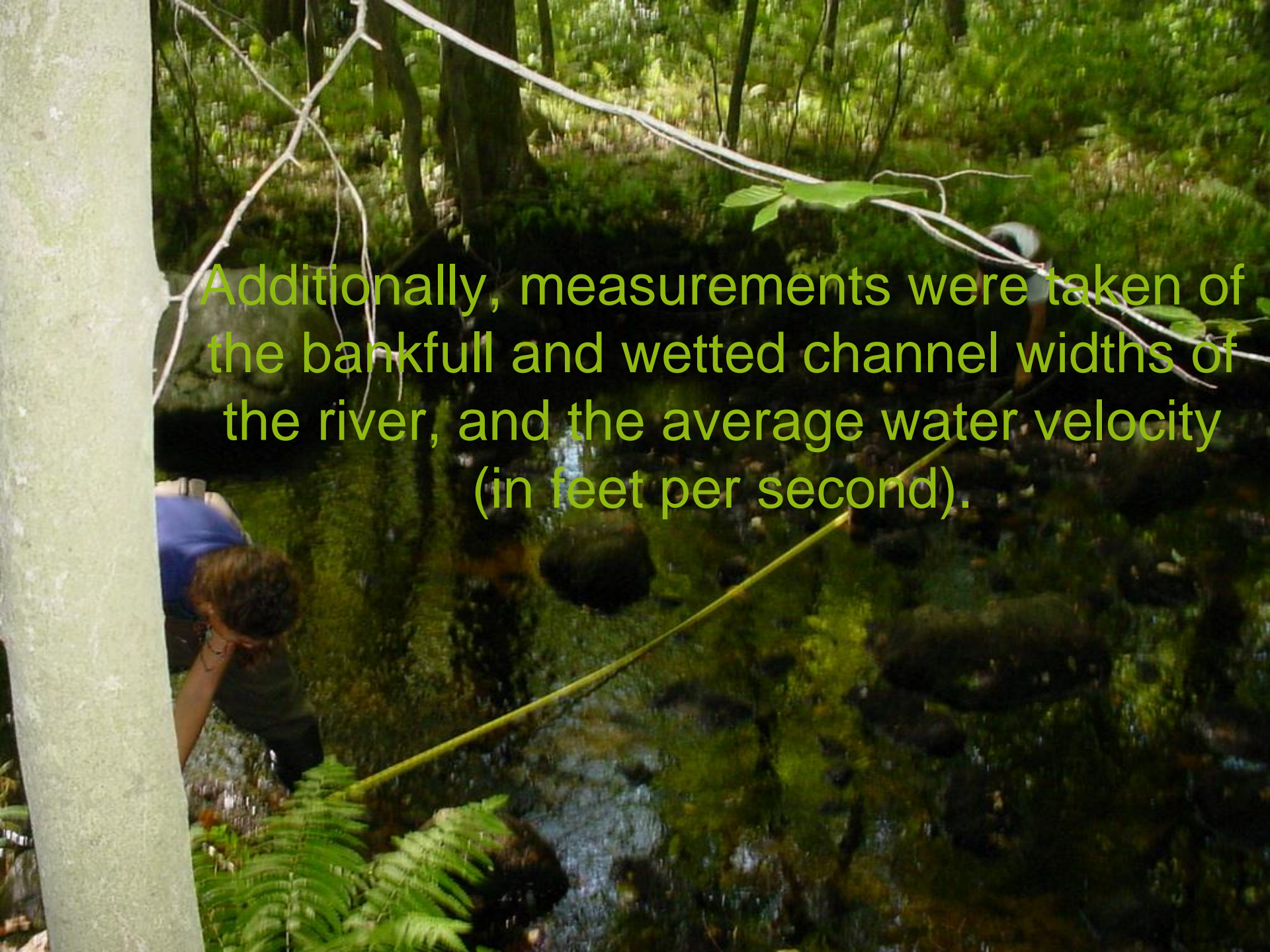
A site sketch of each location was also completed.

Sam cleverly
sketches out the
site with great
skill and speed.



A photograph of a young man and woman sitting on the forest floor. The woman, on the left, has blonde hair and is wearing a black t-shirt, blue jeans with a tear at the knee, and green patterned boots. She is holding a white notebook and a pencil, looking down at it. The man, on the right, is wearing a white baseball cap, a light grey t-shirt with a "TOMMY HILFIDEN" logo, and black rubber boots. He is looking towards the woman and smiling. They are surrounded by trees and fallen leaves.

Kyle chats about the trip to Kirby Brook, while Emily sketches the scene.

A photograph of a person in a blue shirt and dark pants, crouched on the left bank of a shallow stream. They are holding a long, thin, yellow measuring pole that extends across the water towards the right bank. The stream is surrounded by dense green foliage and trees. A large tree trunk is visible on the far left. The water is clear, revealing rocks and moss on the stream bed. The text is overlaid in the center of the image.

Additionally, measurements were taken of the bankfull and wetted channel widths of the river, and the average water velocity (in feet per second).



After our time in the field, we began the long classifying and sorting process.

Sorting Process

- The preserved contents from the field were poured into a tray with grids.
- Three grids were randomly selected and the contents of those grids were moved to another tray.
- Three grids of the 2nd tray were then randomly selected.



- Each student was responsible for examining the contents of the selected grids under a microscope.
- Each time a member of the class found an organism they would identify it, and then put it in the specified vial.
- Meanwhile, each group was keeping a tally of how many of each organism were found.



Nora and Meg sort through the macro invertebrates once back at the school.

Site # 1: Kirby Brook (at Westport High School)

- Date: October 4, 2005
- Location: Kirby Brook (Westport High School)
- Bank full: 24.3 ft.
- Wetted Channel: 8.1 ft., 8.5 ft., 9.5 ft.
- Flow: Stagnant



Tally of High School Site Macroinvertebrates

- Isopoda-1
- Oligochaeta- 231

MGBI-8.9

VERY POOR!



The Isopod

- **The isopod was found in the brook outside of WHS. Only one specimen of this order was found.**
- **This indicates that the brook outside of the WHS is not very healthy and creatures with a high tolerance to bad water can survive in it.**



Oligochaeta

- These made up the largest portion of our field study
- Oligochaeta are commonly known as “aquatic worms” and Leeches
- Aquatic worms are very durable and can thrive in water with little oxygen and low flow.



Site # 2: Kirby Brook (at Drift Road)



- Date: October 4, 2005
- Location: Kirby Brooke (Drift Road)
- Bank full: 17.8 Ft.
- Wetted Channel: 13.2 ft. 15.7 ft. 18.9 ft.
- Flow: 0.6 ft/sec.

Tally of Drift Rd.

Macroinvertebrates

Ephemeroptera- 4	Isopoda- 5
Plecoptera- 1	Decapoda- 1
Trichoptera- 6	Gastropoda- 1
Diptera/Chironomidae- 17	Pelecypoda- 1
Odonata-8	Oligochaeta-71
Megaloptera- 15	
Coleoptera- 28	MGBI: 6.57
Amphipoda- 9	Poor!

Megaloptera

- Live in running water under high shade with rocky river beds.
- Megaloptera breathe using gills.
- Megaloptera eat insects and other arthropods whether aquatic or terrestrial.
- Suitable for this location.



Trichoptera!

Habitat: slowly moving
fresh water, shade.

Breathe: with small gills
underwater

Food source: leaves or
algae.



The habitat that we found
this organism in has 1 1/2
foot deep running water
with shade and a rocky
hard packed bottom.



DIPTERA

Flies have a life cycle that involves major changes, from a soft-bodied, wingless larval stage, to a hardened, winged adult, this makes them holometabolous insects.

As larvae, they typically consume decaying matter. As adults they consume liquid food such as nectar or often decomposing organic things.

When in the larvae stage, they live in rivers and streams in the soil.

This environment was suitable for diptera.

Ephemeroptera

- Prefer unpolluted habitats with fresh, flowing water
- Most of them do not feed (mouthparts are vestigial)
- They breathe through delicate gills on the back of their abdomen
- On the trip they were found in polluted and barely flowing water



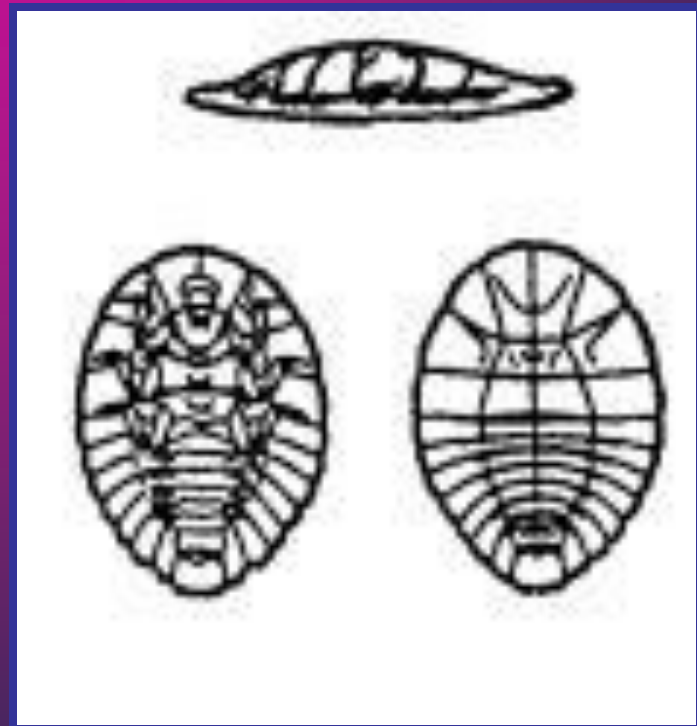
coleoptera

Coleoptera is the order of beetles.

The coleoptera we found was the water penny, which is an immature beetle.

Water pennies are a very distinctive creature.

Water pennies are very sensitive to polluted water.



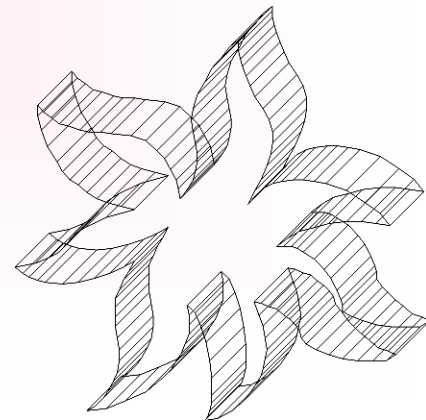
Odonata are dragonfly
larvae.

Found normally in
rivers, streams, ponds,
brooks, and lakes

They prey mostly on
other insects.

This site was
appropriate for
dragonfly larvae.

odonata



Amphipod

- **Environment-** Slowly running fresh water, shady area, 6 in-1 ft. depth, muddy surface
- **Eat-** Starfish leg tails, diatoms, bits of leaves, moss
- **Breathe-** Through gills

This site was sufficient for the Amphipod.



conclusion

Based on our analysis of the data, neither site was experiencing ideal, healthy conditions. We believe that this was due predominately to lack of rain.

Although we didn't test for polluting factors, it is possible that both sites were experiencing runoff from nearby farms, and roadways.



Fin

The Team:

Emily Allen

Kyle Arruda

Max Brinkmeyer

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Meg Levesque

John Machairas

Sam Mauck

Nora Montano

Ben Paull

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