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EPT Invertebrates: Fact and Fable

FACTS: Benthic macroinvertebrates are bottom dwelling, spineless insects large enough to be seen. **The EPT Index** uses the following three orders of aquatic insects as an **indicator of water quality**. This is because they are particularly sensitive to pollution, as well as being common in the benthic macroinvertebrate community.



Ephemeroptera, the mayfly order, is Greek for “short-lived winged” referring to the short-lived adult lifespan, usually less than 24 hours for some species. The nymphs are characterized by having well-developed abdominal plate-like gill filaments and usually 3 well-developed caudal filaments. These mayflies feed by scraping live organic matter off the surfaces of rocks and by bottom grazing.

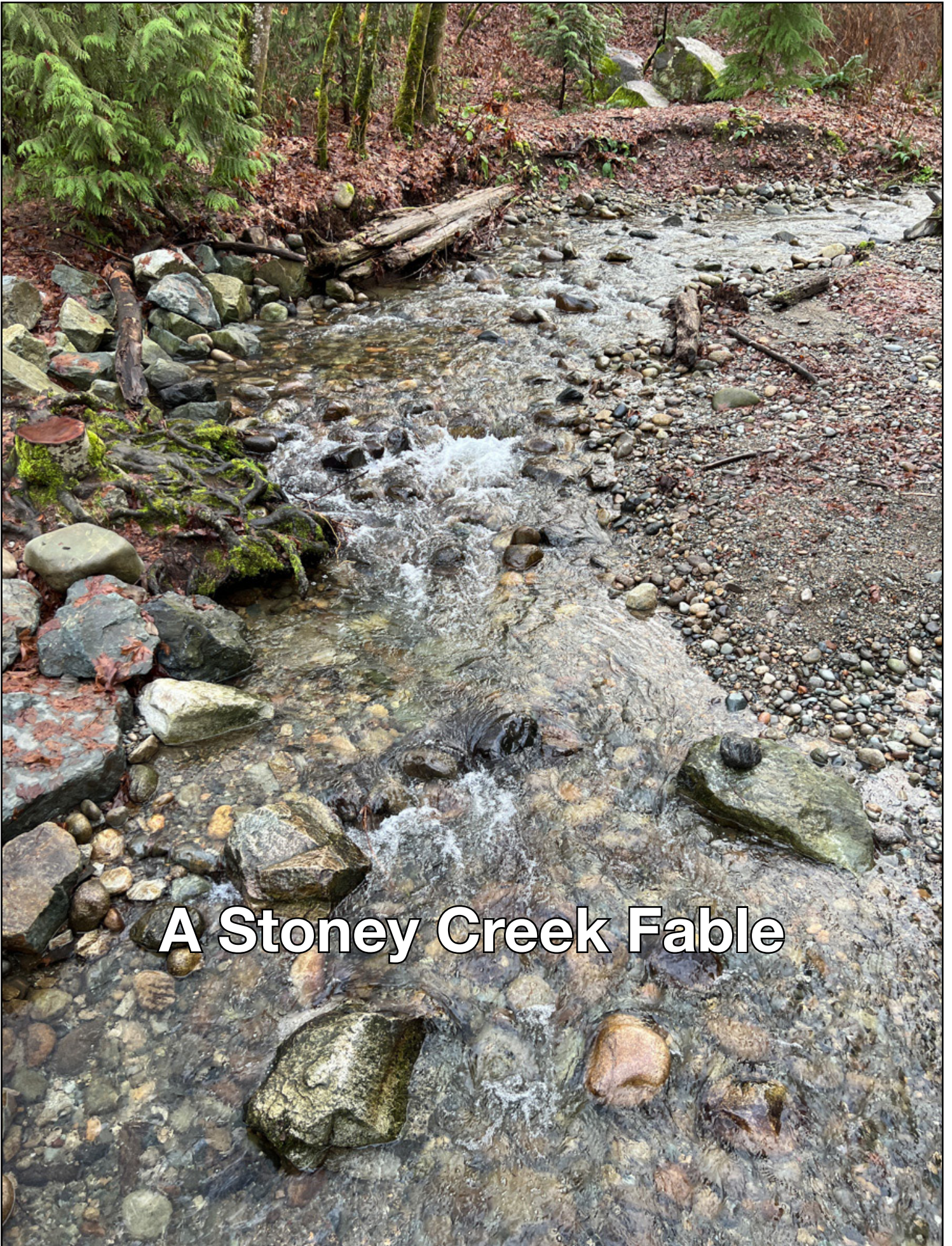


Plecoptera, the stonefly order, is Greek for “folded or pleated winged” referring to the adults’ wing arrangement. Stoneflies are the least pollution tolerant of the EPT group and are found in cold, clean, highly oxygenated streams and usually in leaf packs or under stones, hence their namesake. Stonefly nymphs have only 2 antenna-like tails. They are voracious predators, preying on other aquatic insect larvae and nymphs.



Trichoptera, the caddisfly order, is Greek for “hair wings” in reference to the hairs covering the wings of adults. Caddisflies larvae inhabit a wide range of habitats such as streams, rivers, lakes and ponds. Many caddisfly larvae are known for their ability to make cases out of sand, pebbles, or plant matter using sticky homespun silk. They are scraper/grazers primarily feeding on diatoms and detritus.

Source: [The Swamp School](#)
Front photo: Spiny Crawler mayfly



A Stoney Creek Fable

Fable: (thanks, ChatGPT!)



At the edge of a bustling city, nestled in a mountainside ravine, there flowed a creek named Stoney. Its waters sparkled like jewels, winding their way from a distant forest down through an urban landscape. The creek was home to lively salmon and trout, serving as a vital artery for local wildlife and a cherished retreat for the people who strolled its banks.

One fateful July day, a mishap at a nearby firehall turned the tranquil creek into a scene of despair. In their haste to control a spill of firefighting foam, the firemen accidentally directed a massive amount into a storm drain. This drain, unfortunately, led straight to Stoney Creek. The once-clear waters were soon enveloped in a thick, toxic foam, their purity marred by a greasy sheen.

The effects were swift and devastating. Juvenile fish, once darting with vitality, now floated lifelessly. The joyful ripples of the creek gave way to a mournful silence. Even the diverse creatures, such as crayfish and lampreys, that lived in the creek succumbed to the poison, and the ecosystem seemed on the brink of collapse.

Yet, amid the devastation, a quiet miracle was taking place. Deep within the creek's bed, where the foam was less concentrated, the benthic invertebrates—tiny creatures like mayflies, caddisflies, and stoneflies—were still alive. These small but mighty beings played a crucial role in the creek's health. They fed on organic matter and helped decompose debris, turning it into nutrients for other life forms.



Despite the harsh conditions, these resilient invertebrates worked tirelessly. They scavenged and broke down the poisoned debris, gradually improving the water's quality. Their persistent efforts started to show results: the water began to clear. Small patches of algae began to grow, providing food and shelter for other creatures. Tiny microorganisms returned, drawn by the improving conditions. The once-dead creek slowly began to recover.

One day, a young boy named David, who frequently visited Stoney Creek Trail on his mobility scooter, noticed a change. Tiny fish were again cautiously swimming near the banks. News of the creek's recovery spread, and the community was uplifted by these hopeful signs.



Seeing the creek's miraculous transformation, the city folks decided to help. They took care not to let their dogs and children disturb the creek bed, planted trees along the banks to prevent further pollution, and worked together to reduce runoff from their yards. Their efforts, combined with the invertebrates' unwavering perseverance, accelerated Stoney's recovery.

With time, the creek flourished once more. Salmon fry swam with renewed energy, herons croaked their greetings, and birds came to feast on the thriving insects. Stoney, once a poisoned stream, became a vibrant testament to nature's resilience and the importance of even the smallest creatures.

The fable of Stoney Creek teaches us that even in the face of great adversity, hope and recovery are possible. The tiny invertebrates' quiet, relentless work, combined with the community's support, restored the magic of Stoney. Their story, passed down through generations, will serve as a reminder of the power of perseverance and the vital role every creature plays in the web of life.