



Mysterious Miniature Worlds

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First impressions of Fishing Creek appear to show nothing but a roiling, empty mass of water, stones, and plant debris. Where is the rich biodiversity that supposedly exists in this place? Venture out into the stream poking around with your net, however, and it becomes clear that the Creek is not a single entity but a collection of tiny pockets of life.

There are many examples of microhabitats at Fishing Creek, each housing one part of the ecosystem and each vital in their own way. Along the banks, tree roots dangle down into the water, providing invertebrate and vertebrate alike with shelter from predators. Out in the middle of the stream, schools of fish hide amongst scattered rocks and leaves, and the largest tertiary, top-level consumers hunt without fear. Where the water cascades down in waterfalls, predators like hellgrammites capture prey tumbling down. Even the tops of rocks support biofilm of algae and bacteria, anchoring a vital source of autochthonous energy that is fed upon by primary consumers.

Clusters of decaying leaves that fall and are swept downstream serve as particularly important examples of microhabitats, because they can contain representatives of all the major trophic levels of the ecosystem. First, they are colonized by algae, bacteria, and fungi, representing the producers and decomposers. Next, the primary consumers arrive, which are the herbivores and fungivores and include organisms like caddisflies, snails, and stoneflies. Finally, attracted by the abundance of prey, secondary and tertiary consumers like crawfish, salamanders and fish arrive.

In addition to providing niches, microhabitats also create a strong foundation for the terrestrial members of the Fishing Creek ecosystem. Many organisms (e.g. stoneflies) emerge from the water to spend their adult lives on land, and so need places to lay their eggs. Birds, mammals, and reptiles can find consistent sources of food in a stream as well.

Fishing Creek, like other freshwater habitats, is full of a fascinating variety of creatures, all with their own miniature worlds. Taking the time to find each one only strengthened my admiration for the complexity of nature.



Rocky edge of Fishing Creek, north of Frederick, MD, on 28-Sep-2017