

## ***Tapeats Creek: Habitat for Fish and Invertebrates***

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We examined Tapeats creek (RM 134) for fish and aquatic invertebrate habitat. The creek is spring fed by the Thunder River and is heavily vegetated with tamarisk and willows in the overstory, *equisetum*, *mimulus* and cress along the water's edge, and river rocks are algae-covered up to the mouth of the creek. As a perennial clearwater stream, it provides quality invertebrate and fish habitat. We observed four rainbow trout total and 1 of these was sampled for stomach contents (figure 1). This number is surprisingly low considering the turbidity of the mainstem river and the high quality of habitat and food resources available in Tapeats Creek. Few aquatic invertebrates were observed in the main river, due largely to the dramatic daily fluctuations in water level that desiccate the ideal invertebrate habitat along the edges. It is generally observed that trout reduce their feeding attempts in high turbidity conditions (Valdez 2005). No other fish species were observed during our time at the creek.



**Figure 1.** Rainbow trout caught and sampled for stomach contents at Tapeats Creek.

Kick net samples were taken in cobble, riparian edge habitat and pour-over boulders, but were not exhaustive or replicated. The dominant aquatic invertebrate taxon found in benthic samples was Ephemeroptera (mayflies), family Baetidae. Also represented in high densities were Trichoptera (caddisflies), families Hydropsychidae and Limnephilidae; Diptera (flies) families Chironomidae, Empididae and Simuliidae; and Coleoptera (beetles) family Elmidae. We also found physid snails, Isopods and Odonates (damselflies). The species assemblage observed is both diverse and abundant indicating a healthy system and plentiful food resources for fish.

Stomach contents from a rainbow trout (SL 147 mm) were examined for invertebrate composition. The diversity of insects found in gut contents was greater than those found in samples taken from the creek, including Stratiomiidae (Diptera), Gomphidae (Odonata), Lepidostomatidae (Trichoptera), a terrestrial Hymenopteran (wasp) as well those taxa listed above. It is not clear whether the trout sampled was occupying habitat provided by Tapeats Creek but it is clear that it was utilizing food resources found there. The creek supports much greater invertebrate life than the mainstem river, therefore it makes sense for trout to be feeding on insects from Tapeats Creek. However, relatively few trout were observed in Tapeats Creek and its interface with the Colorado River. It is possible that high winter flows in the creek flushed out trout and other fish species. However, fish could easily re-colonize the creek as it provides far superior trout habitat than the mainstem river.

As a perennial spring-fed Clearwater stream that supports abundant invertebrate life, Tapeats Creek appears to be very important to the trout of the Colorado River. It provides both a diverse food supply and spawning habitat for fish that is far superior to that found in the mainstem Colorado. The small number of fish observed in the creek was surprising but may have been due to recent storm events and the limited stretch of the creek observed. The composition of insects found in the trout gut indicates that Tapeats Creek is providing the majority of trout food but that trout may be feeding in habitat areas different from those we sampled. Little is known about trout below Lee's Ferry but it seems that tributaries such as Tapeats Creek are essential to their survival.

## **References**

Valdez, R.A. Telephone conversation with R. Valdez, SWCA Consultants. January 26, 2005.