

# *Dam Induced Terrestrial Subsidies for Aquatic Ecosystems in the Middle Green River*

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Vinson's (2006) work on rainbow and brown trout diet's in the Green River documented a preference for terrestrial insects, among other invertebrates, but found that the terrestrial insects made up only a very small portion of the trout diets. This stands in stark contrast to several other studies that show terrestrial insects making up a significant part of trout diets, up to 77% in some studies (Nakano et al. 1999). Many studies document terrestrial insects serving as a major component of fish diets over the course of a summer, comprising 15 to 50% of juvenile salmonid diets in some streams (Wipfli 1997).

Our first campsite on the Green River, at river mile 279.8, provided me the opportunity to observe the importance of terrestrial insects in trout diets. Shortly after we arrived at the campsite, the water began rising from 800 cfs to 2000 cfs as the hydroelectric dam increased its generation to meet peak demand. I didn't observe any fish feeding on the surface for the first 30 minutes we were at camp, but as the shallow weedy shoreline began to flood, I noted adult brown trout moving into the shallow water and feeding with regularity. The other notable aspect of our camp was the myriad ants that scurried around the site and over much of the bank near the river. I surmised that the trout were likely taking ants as the rising water carried them off the shore and into the trouts' feeding lanes. These observations should be verified by gut analysis of brown trout over the course of a full day, which would capture daily variation in trout diets.

Previous work on trout diets in the Green has used gut contents from one temporal period, generally a spring night sampling in the last several years (Schneidervin 2005). This temporally concentrated sampling method misses daily changes in trout diets and also misses important seasonal fluctuations, which have historically been noted to change trout diets (e.g. the early summer cicada hatch on the green, which likely serves as a massive terrestrial subsidy for the aquatic ecosystem). Modeling of trout diets over a full season has suggested that terrestrial subsidies may be responsible for roughly 5% of annual trout production (Edwards and Huryn 1995). Future work on the Green River should include sampling over several times scales to more accurately portray the importance of terrestrial subsidies in maintaining the unusually high levels of trout biomass found on the middle Green River.

## **References:**

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