

SWOSU Professor Presents Paper at International Entomologist Conference

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Aquatic entomologists, who study mayflies (Ephemeroptera) and stoneflies (Plecoptera), assemble for a meeting once every three years to discuss their research. This year the meeting was held in Wakayama, Japan.

Grant presented the results of research on a mayfly that inhabits Deer Creek, north of Weatherford. This mayfly, *Cercobrachys winnebago*, is unusual in that it burrows in the sand in the aquatic nymphal stage. Most mayfly nymphs attach themselves to a hard surface.

The research was largely the product of two former SWOSU undergraduate research projects. Mike Walters, now living in Raleigh (NC), studied the life cycle of this species, while Claudia Wright of Weatherford performed an experiment showing that the nymphs prefer to burrow in the finer sand, which occurs patchily along the edges of the stream in shallow water with slow current.

Amber Rymer, biology major from Clinton, will be continuing research on this species in Grant's laboratory by examining the food of the nymphs (adult mayflies do not feed). The content of the guts of the small nymphs can be observed through their integument and it is loaded with fine sand, which has no nutritional value. Most likely the animals derive nutrients from material and organisms on or between the sand grains, according to Grant.

There are over 560 species of mayflies in the United States, but the total number of species found in Oklahoma has not yet been determined. With 12 ecoregions in the state, Grant said the number of species could be quite high. While most mayflies are very small animals, they occupy an important role in streams by converting plant and detritus (compost material) into animal tissue which then becomes available to the next level of the food chain. Over 200 species of animals are known to feed on mayflies. One of the oldest known mayfly fossils, over 300 million years old, was found in north central Oklahoma.

Grant serves as secretary on the Committee for the International Conferences on Ephemeroptera, which is responsible for the organization of the triennial meetings. The next meeting is scheduled for Aberdeen, Scotland, in 2015.

Grant also is the editor of *The Mayfly Newsletter*, an international publication that assists with communication among those who study these animals. The last issue of the newsletter was sent to 424 individuals in 48 countries.

For further information about mayflies or aquatic insects in general, Grant can be reached at 580.774.3294 or peter.grant@swosu.edu.