Wolf spiders and other sand-dwellers in Grand Canyon riverbank camping habitat

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All pictures: Sarah L.Thrasher 2005

Above: sand mound in high water zone, dotted with wolf spider burrows.

While walking onto the final beach camping site of our Grand Canyon odyssey, I admit I was guilty, as many of us were, of trampling some tiny permanent campers in the sand: microscopic wolf spiders. The 6 mm spiders' burrows are easily mistaken for rain erosion or overlooked altogether, but wolf spiders are only one of the sand-camouflaged residents sharing prime sandbars with rafters like us.

Wolf spiders, in the chelicerate family Lycosidae, dig tiny burrows in moist sand dunes and riverbanks (CCM 2004). They wait inside their burrows during the day and eat small arthropods that wander in the front door. At dusk they are more active, coming out of their burrows and risking some above-ground hunting. Their most common prey are insects and other spiders.

Another microscopic arthropod shares the wolf spider's habitat. It is a 5 mm long grasshopper in the insect order Orthoptera, and probably falls prey to the spiders. The wolf spider and smaller grasshopper seem to reside mainly in the 15,000 to 40,000 cfs zone, where sand is moistened enough to hold its shape and provide structural support for burrows. Therefore, Glen Canyon Dam's daily ramping from 5,000 to 20,000 cfs probably does not disturb these small arthoropods, but large floods like the November 2004 42,000 cfs event would. The normal water levels are probably just high enough that water leaches up into the zones necessary for burrow building but does not inundate them.

Another grasshopper uses the sandbars, but in a higher zone than its tiny relative. The larger grasshopper is about 8 to 10 cm long and prefers the tamarisk and willow habitat that occurs above the zone of regular inundation, at least above about 25,000 cfs. This large grasshopper's coloration is indicative of its habitat: it wears a perfect combination of sand and rock colors, while the sand bank residents are purely sand-hued.

Preservation and restoration of good camper habitat by floods like the 42,000 cfs November event will also benefit these inconspicuous residents. Being small arthropods, they contribute to the food base of higher animals who would benefit secondarily as well.

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Left: wolf spider, 6 mm. *Center*: small grasshopper, 5 mm, and larger spider on wolf spider burrows. *Right*: Larger grasshopper, 8-10 cm.

Reference

Conservation Commission of Missouri. 2004. Missouri Spiders. http://www.conservation.state.mo.us /nathis/arthopo/mospider/kinds.htm. Accessed 3 April 2005.