2011 Hydrogeologic Studies

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Hydrogeologic studies are being prepared for several of the 62 BCP permit caves each year. These studies describe the local geological influences on cave development and groundwater flow, the surface and subsurface catchments to the caves. Since water is critical to cave ecosystems and represents a surface-subsurface interaction, cave drips are mapped and characterized. Access to the endangered species caves is authorized by US Fish & Wildlife permit TE833851-1 in Travis and Williamson Counties for permittees Nico Hauwert, Sylvia Pope, Scott Hiers and accompanying assistants.

McNeil Cluster

Hydrogeological studies were completed on Dec. 10, 2010 for the McNeil Cave cluster caves of Fossil Garden, No Rent, Weldon, and McNeil Bat Cave. This study gathered geological and bedding dip data from the surface outcrops, cave exposures, and three borings to examine bedding dip and stratigraphic controls on vadose flow to cave drips. New cave maps were drafted for three of the four caves that map drip locations and elevations. No direct tracing from the surface to cave drips was conducted for this study. After the completion of the report on May 10, 2011, the lower drips in McNeil Bat Cave was sampled to further characterize the source. The sample was not been analyzed by all of the labs at this time.

Blowing Sink/Goat/Maple Run Caves

A hydrogeological study for Blowing Sink, Goat, and Maple Run caves is being conducted in 2011 and 2012 by CoA Watershed Protection Dept and Zara Environmental. Zara hydrogeologists are monitoring drip rates and tracing selected surface sites to help define subsurface catchment areas to drips and cave streams. The onset of drought in 2011 has delayed the commencement of soil tracer injection since the study relies on natural rain events.

In 2010, a tracer injected in Wildflower Cave by CoA Watershed Protection Dept (Nico Hauwert) was detected in dye receptors placed in the cave stream of Blowing Sink (1 mile east) and recovered by CoA BCP staff (Mark Sanders) and TCMA volunteers (Heather Tucek, Devra Heyer, and Sandi Calhoun). This successful tracer recovery provides an important breakthrough for delineating source areas for Blowing Sink.

Five sinkholes (Winter Woods, Wyoka, Williams Well, Sinky Dinky, and Brownlee) roughly overlying the subsurface extent of Blowing Sink are experiencing sediment and erosion problems as flows breach temporary cave gate structures. This sediment and erosion problem is compounded with frequent trespassing and vandalism of this site. The Watershed Protection Dept (project manager Nico Hauwert) is overseeing a project to fence the tract, conduct an engineering study, and construct suitable sediment and erosion structures to replace the currently collapsing entrances. Funding for the project begins in FY2013.

Jester Estates Cave

In 2011, CoA WP staff (Nico Hauwert) and BCP staff (Mark Sanders) initiated hydrogeologic study of Jester Estates Cave. In 2008, Mark observed heavy saturation on the surface and in the cave and signs pool discharge to the pool unslope of the cave entrance. Hydrogeologic data collected in 2011 included a new cave map, surface and cave stratigraphy, water-quality sampling of a floor pool, and mapping of the surface catchment area. A drip gauge was installed on November 22, 2011 to measure variation in drip rates. A brief hydrogeologic summary is attached.