

North-Central Section - 43rd Annual Meeting (2-3 April 2009)

Paper No. 10-5

Presentation Time: 2:30 PM-2:50 PM

## **HOLY GRAIL CAVE, FILLMORE COUNTY, MINNESOTA**

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Dye traces (Alexander et al., 1995, plate 9, Springsheds) demonstrated that water sinking in the York Blind Valley (the biggest blind valley in MN) resurges 11 miles away at Odessa Spring (the biggest spring in MN). Cavers and karst hydrologists have been searching for an entrance to the conduit/cave system that connects York and Odessa for decades. That search was unsuccessful until August 2008. On 7-8 Jun 2008 a thunderstorm dumped 11-12 inches of rain on southern Fillmore Co., MN in about 12 hours and a new sinkhole MN23:D5160 opened in a grassed waterway in section 19 of Bristol Township in Fillmore County. When first visited by one of us (DSD) on 5 Aug 2008, D5160 proved to be the Dome Collapse Entrance to a new cave MN23:C0158. The explored passages are in the Ordovician Dubuque and Stewartville Formations. C0158 was named Holy Grail Cave (HGC) and purchased by the Minnesota Karst Preserve (). A temporary 24 inch culvert was sealed into D5160. A permanent 30 inch shaft entrance will be installed in 2009. As of 14 Dec 2008 HGC's mapped length is 2.55 miles (4.1 km). HGC is currently the 4th or 5th longest cave in MN and exploration and mapping is actively expanding the surveyed length. The explored passages in HGC underlie a 1/4 by 1/8 mile rectangle. Typical passages are often 15 ft wide by 10 ft tall. HGC is a strongly joint-controlled maze cave. Several of the passages are partially or completely blocked by debris cones from sinkholes. Many passages contain pits that lead to lower, usually water-filled levels. HGC is about midway between York Blind Valley and Odessa Spring and may prove to provide access to the largest cave system in the Upper Mississippi Valley.

The discovery of the HGC cave system further emphasizes the ubiquity of conduit drainage systems in carbonate aquifers with active flow systems and the vulnerability of these important aquifers to surface pollutants. Until D1560 opened there were no mapped sinkholes on the property. Active sinkholes on a property do indicate the presence of conduit system below. However, the absence of an active sinkhole on the surface is neither sufficient nor adequate evidence that the site does not overlie a vulnerable karst aquifer.

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General Information for this Meeting

Session No. 10

Water Resources in Karst Terranes of the Midwestern U.S.

Northern Illinois University Rockford: 201

1:00 PM-5:00 PM, Thursday, 2 April 2009

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