

### About the MKC

The Michigan Karst Conservancy is dedicated to the preservation of examples of Michigan's Karst areas. It was formed in 1983 by people with an appreciation for Michigan Karst features, when it became apparent no other groups were interested and able to actively protect such areas for their inherent geological interest.

The purposes of the Conservancy are the acquisition, management and protection of the finest examples in Michigan of Karst areas and features, as well as scientific study, and conservation education about Karst.

### About the MNA

The Michigan Nature Association, established in 1952, is a private, nonprofit organization dedicated to acquiring, protecting, and maintaining Michigan's unique natural habitats that are home to some of the most extraordinary plants, animals, and natural features.

The MNA is committed to protecting these resources so that future generations can experience firsthand what you help us preserve today. With over 165 nature sanctuaries and plant preserves in 56 counties, no matter where you live, you're never far from finding beauty and tranquility in nature.

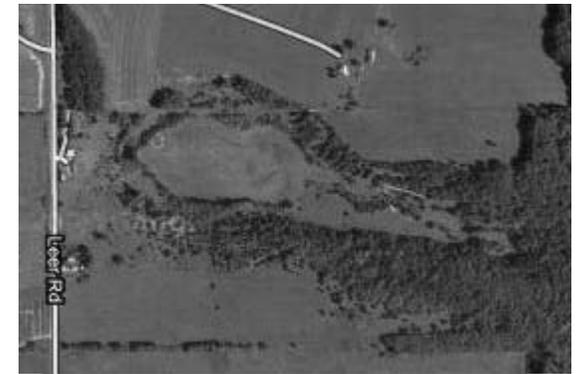
Mystery Valley is co-owned by:  
Michigan Karst Conservancy  
2805 Gladstone Ave.  
Ann Arbor, MI 48104  
[www.michigankarst.org](http://www.michigankarst.org)

Michigan Nature Association  
326 E. Grand River Ave.  
Williamston, MI 48895  
[www.michigannature.org](http://www.michigannature.org)

Please recycle this brochure by returning it to the kiosk for others to use...thank you.

*Visit the Stevens Twin Sinks and Bruski Sink Preserve by following Leer Road south for approximately 4 miles. The Preserve is on the west side of Leer just past the Maple Lane intersection.*

# Mystery Valley Karst Preserve and Nature Sanctuary



*Aerial view of Mystery Valley (Google)*

## Welcome

Welcome to Mystery Valley, one of the largest known collapse structures in the Great Lakes region. Most of the bedrock at or near the surface in northeast lower Michigan slowly dissolves in water. As a result, liberal solution of the underlying rock has produced a network of underground caverns beneath this part of Presque Isle County. Unlike a valley carved by a river, Mystery Valley formed by the collapse of the surface into a labyrinth of subterranean chambers. Follow the numbered posts along the two self-guided nature trails to learn more about this fascinating geologic feature.

## Trails policy

The objective of the Michigan Karst Conservancy is to protect karst areas in Michigan and to educate the public about the value of karst lands and the safe and proper use of these lands.

One aspect of this objective is to provide educational trails on its karst preserves. These trails are narrow footpaths that often go through wet or muddy areas; across or around rocks and boulders; and often have steep, narrow, hilly, or sideways tilted surfaces. Some cross bare rock or cross a stream on a narrow rustic bridge.

These trails are not suitable for personal assistance mobility devices such as walkers, manual or motorized wheelchairs, power scooters, golf carts, off-road or all-terrain vehicles. Use of such equipment on MKC trails is not reasonable and is likely to do damage through soil erosion, trail widening, plant and root damage, and is thus prohibited.

Visitation to MKC preserves is at the visitor's own risk. MKC normally will not have staff or volunteers or emergency phones or equipment present at a preserve. The preserves are a significant distance from emergency medical facilities. Cell phone coverage is limited or non-existent, especially in the Upper Peninsula.

## Mystery Valley trail

To begin, walk east along the fence line to post 1.

1. Mystery Valley is 1½ miles long and 500 yards wide at its widest point. Its bottom is about 150 feet below the hilltops around it. The open view to the north is across the western end of the valley.
2. This is the start of the **Earthcrack Trail**. A small swallow hole lies just north of the post. A swallow hole is a depression into which surface water disappears and goes underground. Swallow holes come in all shapes and sizes and they are common in Presque Isle and Alpena counties.

3. Known as "Rocky Top," this knoll is the highest point in the preserve. The exposed bedrock here is the Devonian Alpena Limestone and it underlies all of Mystery Valley. It formed in the shallow waters of a warm, tropical sea that covered Michigan some 360-400 million years ago.
4. The low ridge visible to the south through the young sugar bush forest was made by farmers who piled up rocks from the surrounding fields that were left behind by glacial ice thousands of years ago.
5. The long, narrow opening in the ground is an earth crack. It formed as the limestone on the "down-valley" side of the crack pitched or slid into the direction of the valley whose empty space offered no support for the rock. As the collapse occurred to form the valley, a number of east-west trending cracks developed on the slopes of the valley. Watch for earth cracks on both sides of the trail on your way to post 6.
6. As you proceed west toward post 7, the trail follows a narrow ridge between two parallel sets of earth cracks. The trail to the east leads to Sunken Lake County Park which contains the eastern part of Mystery Valley.
7. Notice the convergence of two earth cracks.
8. This is the eastern end of the longest, widest and deepest earth-crack on the preserve. Be careful near its edge.
9. The earth crack here is hundreds of feet long, several feet wide and in some places, nearly 15 feet deep.
10. Earth cracks at Mystery Valley are visible only on the south slope of the valley. Notice the several sets of roughly parallel cracks extending down toward the valley floor. Such cracks on the north side of the valley are covered with glacial drift.
11. Notice the unusually steep drop to the north. Remember, this is not a "normal" erosion slope but rather the result of solution followed by collapse that may have happened suddenly, without warning.
12. The boulder beneath the tree on the hill to the left is a glacial erratic. It formed somewhere north of Lake Huron and was moved to its present location by glacial ice. It originated as sand deposited along or near an ancient shoreline and was later transformed into the rock *sandstone*. Later, heat and pressure during deep burial changed the sandstone to a metamorphic rock called quartzite.
13. The **Valley Trail** begins at post 14 to the right. To return to Leer Road, turn left and follow the directional arrows. Look closely at the exposed limestone near the post. It contains fossils of some of the marine life that inhabited the sea in which the limestone formed. The shells are brachiopods, the lacy-appearing fossils are bryozoa and the small circular disks are part of the stalk of a crinoid. Follow the two-track down through the beautiful forest to the valley floor.
14. Post 16 is to your left. Posts 17 and 18 are to your right. The fireplace beside the trail en route to 16 is all that remains of a former picnic ground when Mystery Valley briefly existed as a "tourist" attraction decades ago.
15. Water rising from beneath the surface often results in the formation of a lake that covers the west and lowest end of the valley. Most of the water comes up to the surface through an impressive bedrock-walled sinkhole at the west end of the valley (here hidden from view). Rain and spring thaw adds to the volume of water in the lake. As water flows through the underground drainage system beneath Mystery Valley toward Lake Huron, the lake drains back down through the sinkhole (now acting as a swallow hole) and disappears. Sometimes the water is sucked down so fast that a whirlpool develops over the top of the hole. If the valley is dry, feel free to continue west along the trail to view this intriguing swallow hole. The visible pile of busted rock lies around the rim of yet another swallow hole. The busted rock itself is the result of a former owner's attempt to gain entrance to the passageways that exist beneath Mystery Valley.
16. Prior to the building of a dam around 1900, the north branch of the Thunder Bay River flowed into Mystery Valley to augment the water in the lake. During the 1800s, lumber companies that floated logs down the river and into the lake grew tired of losing valuable timber each time the lake drained away. Whole trees and tons of rock were tossed into the lake in hopes of plugging the swallow hole. Even when it worked, the fix was only temporary. Seeping water would eventually clear the hole out and the lake would disappear. Wild tales of a maze of underground rivers spread rapidly throughout the area. The vision of a "Mammoth Cave" beneath northeast Michigan continues to fascinate many residents of Presque Isle and Alpena counties.
17. The Alpena Limestone is part of a larger rock formation known as the Traverse Group, which is a mixture of limestone and shale. The Traverse Group extends to a depth of about 800 feet beneath the floor of Mystery Valley. Below the Traverse Group is another stack of limestone known as the Detroit River Group which contains anhydrite and gypsum, two minerals that dissolve much faster than limestone. Solution of these two minerals has allowed the overlying Traverse rocks to drop from the level of the surrounding ridge tops to the level of the valley floor on which you now stand. The kiosk marks the boundary between MKC/MNA property and Sunken Lake County Park. Return to Leer Road via post 13.

