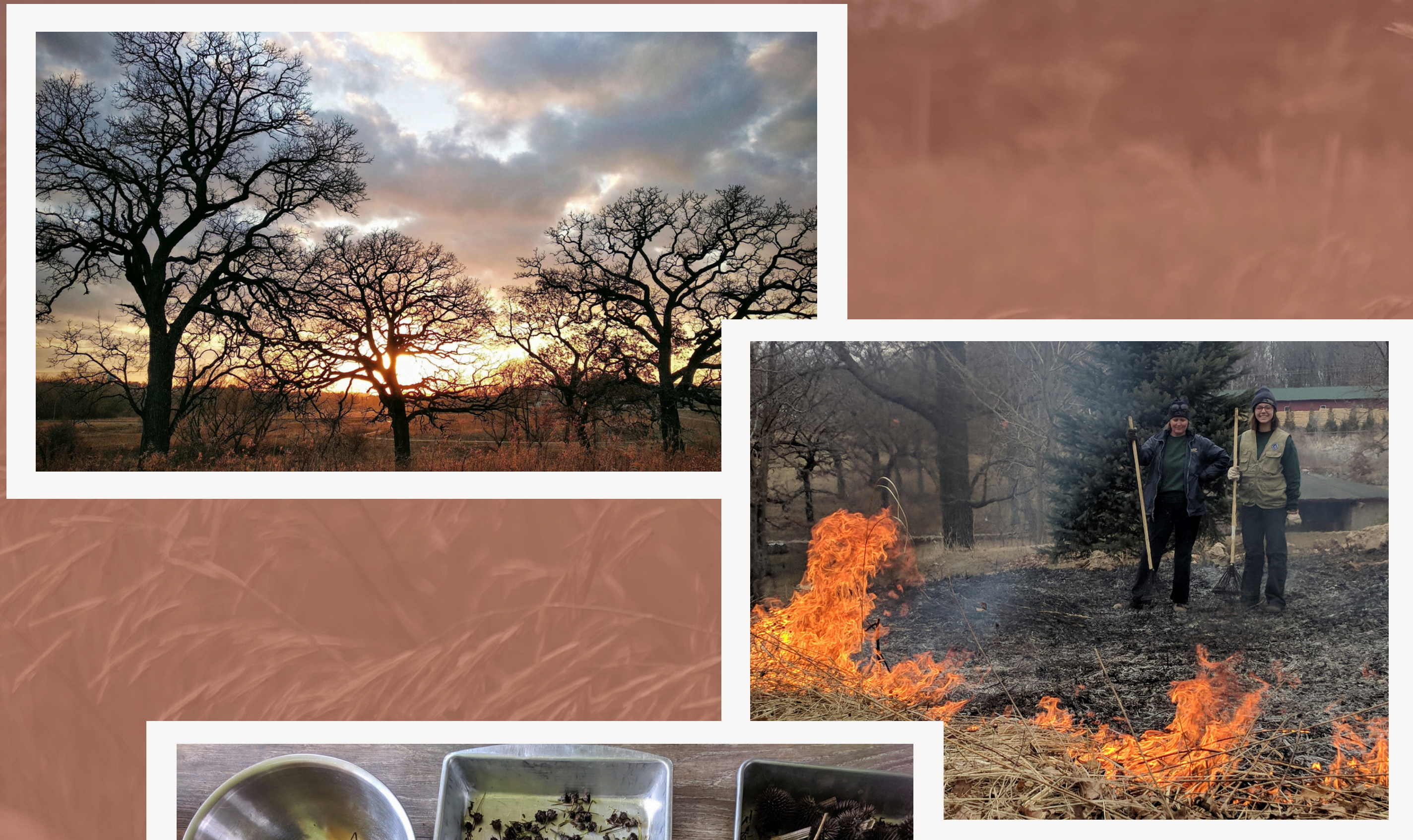


# SETTLING THE SAVANNA

*Oak savannas* are an ecosystem that exist between prairies and woodlands. They are defined as a plant community of scattered "open grown" oaks surrounded by grasses and forbs. The oaks shade about half of the ground. More trees create a woodland, while fewer create a prairie. Savanna oaks have large lower branches, an indication that they grew without competition from nearby trees.

Prior to the settlement of European-Americans, Wisconsin alone accounted for some 5.5 million acres of oak savanna. Savannas were also ideal areas for settlement--plenty of wide-open spaces for hunting and cultivating crops, as well as shady respites ideal for building dwellings. Although oak savannas are now rare (only around 550 acres (0.01%) remain today), many degraded oak savannas remain and can be restored. That is our goal here at Cave of the Mounds.



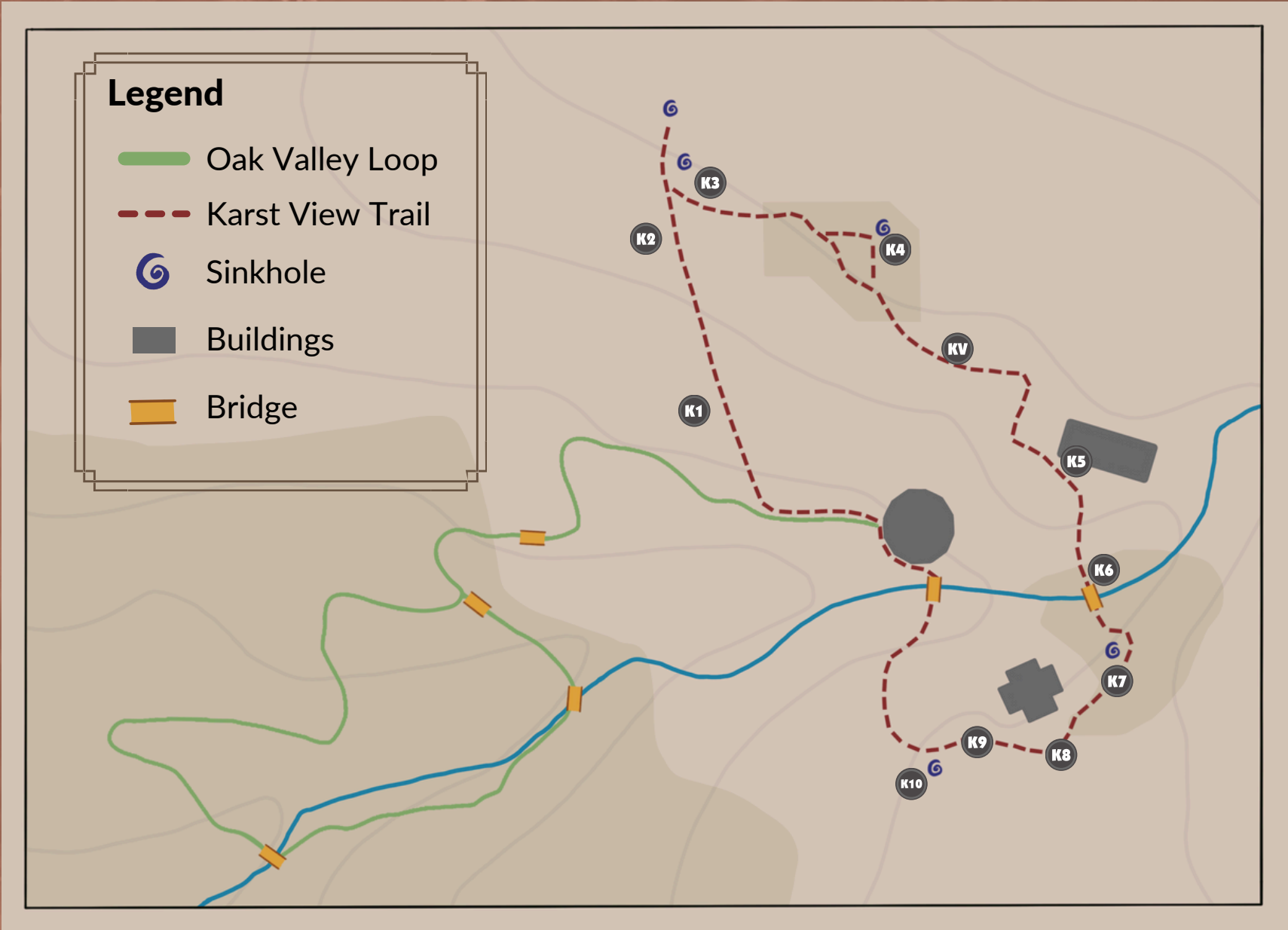
These seeds have been harvested from our prairie/savanna and will be used to help grow new plants in the future--whether by us or an aspiring gardener!

## To Save a Pecking Bird

The Red-Headed Woodpecker is a year-round resident here. It has been in decline linked to habitat loss as well as the suppression of fires.

Red-Headed Woodpeckers prefer open savannas due to their method of hunting insects: they fly through the air between the canopy, catching bugs as they go.

Luckily, nearly all cases of oak savanna restoration have shown a near-immediate reintroduction of Red-Headed Woodpeckers into the area. This bodes well for various other species that prefer savannas over woodland and prairie environments.



Want to learn more?

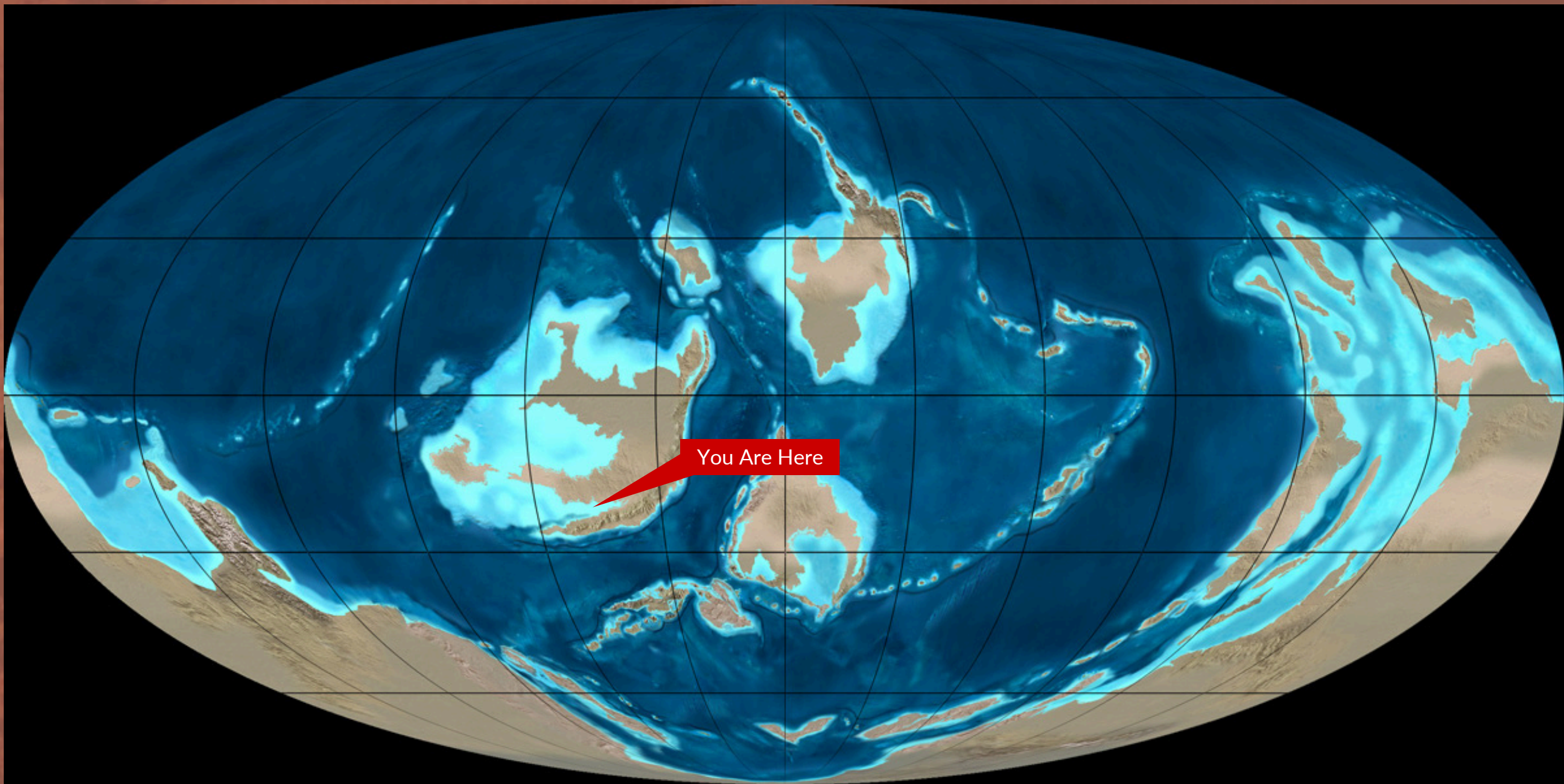


# A VIEW LIKE NO OTHER

The Blue Mounds are the namesake of the Cave of the Mounds and are the highest points in southern Wisconsin. On a clear day, it is possible to see all the way to Illinois. The Driftless region is known for its ancient hills and valleys that were untouched by glaciers during the last ice age. It is partially due to this fact that Cave of the Mounds exists today, as the glaciers would have either filled the cave, covered it in sediments known as *drift*, or crushed it entirely.

Another reason for the existence of Cave of the Mounds is the unique geology of this area. In ancient times, Wisconsin was completely hidden underneath a warm, shallow sea from which limestone, the bedrock of Southwest Wisconsin, was formed. Over time, parts of this soft limestone were dissolved away and formed holes and cavities that allowed for disappearing streams, sinkholes, and cave formation. This type of landscape is known as *Karst Topography*.

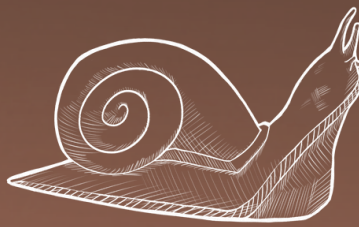
The West Blue Mound is the taller of the two.



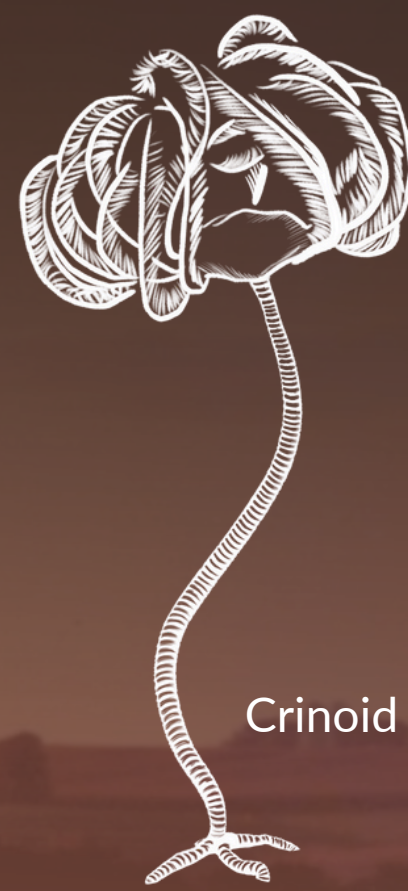
The Earth during the Ordovician Period (~485 million years ago) when our limestone was deposited.

## Wisconsin, A Tropical Paradise

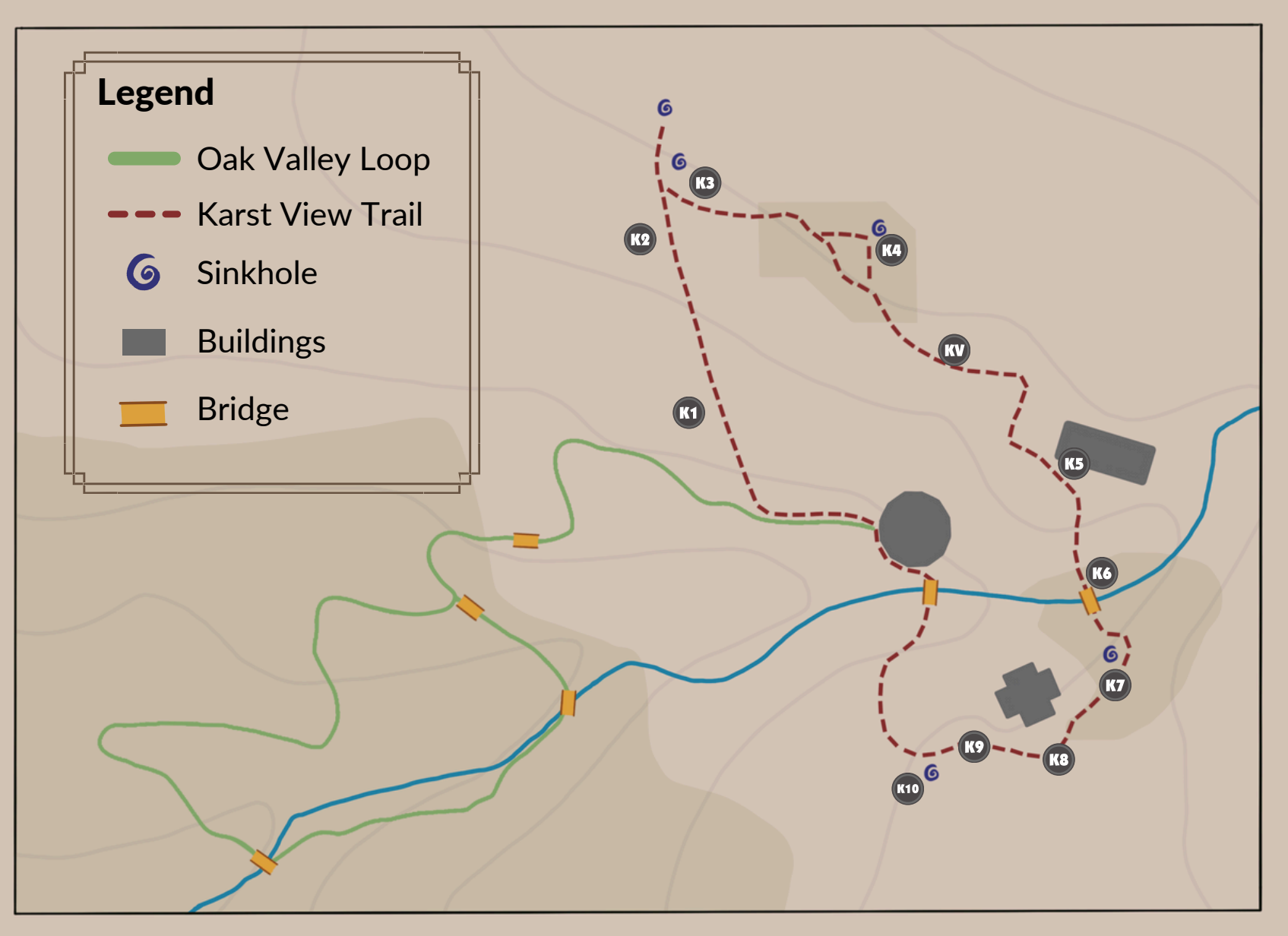
For several millions of years, North America was not so north. During the Ordovician period (485mya - 443mya), the North American continent was much closer to the equator and had a warm, tropical climate. Wisconsin would have been hidden underneath a tropical ocean that had a wide variety of creatures within it--things like cephalopods, gastropods, and echinoderms which can be seen as fossils within Cave of the Mounds today.



Gastropod



Crinoid



Want to learn more?



# SCHOOL SINKHOLE

The ground at your feet is slowly sinking deeper. The School Sinkhole, named for the many children educated here over the years, has been growing larger since its discovery--it is an *Active Sinkhole*. Looking into it, you can very clearly see the path of rain water that flows into the sinkhole before disappearing into the ground.

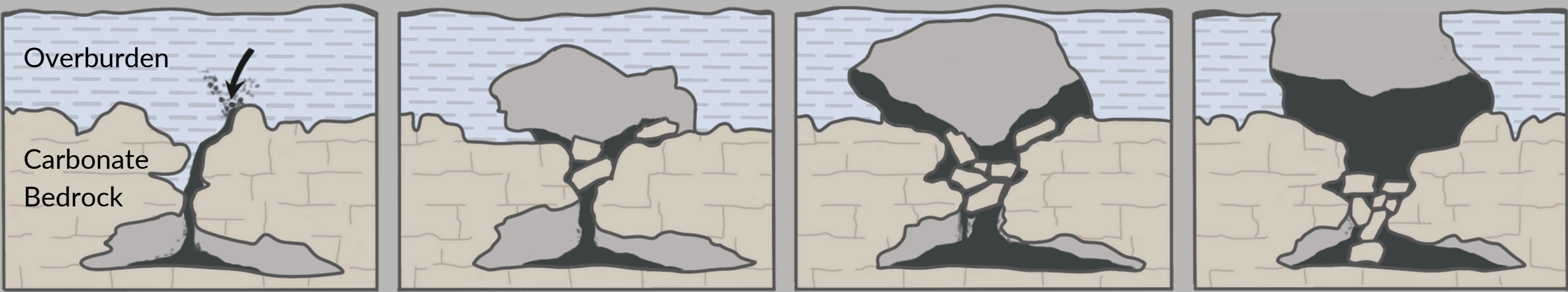
## Sinkhole Formation

Sediments from the *Overburden* Layer (soil, gravel, loose rocks) begin falling into a cavity in the bedrock.

As the sediments continue to fall in, an arch forms. Arches are the strongest structure in nature.

As the roof continues to collapse, the cavity migrates upwards toward the surface.

The cavity eventually breaks through the ground, causing the arch to become unstable and collapse.



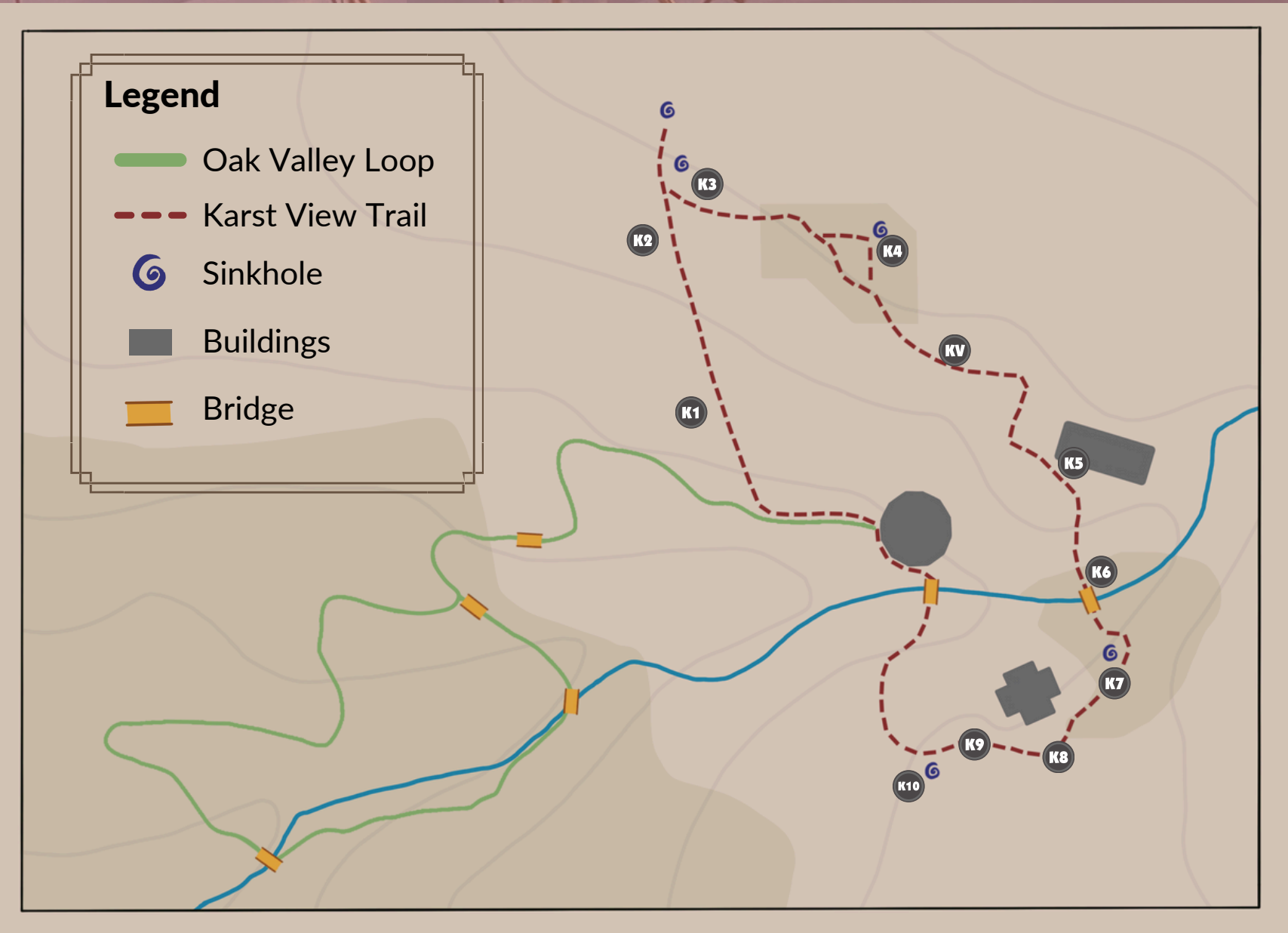
Sinkholes are a common sight in landscapes such as ours. Limestone bedrock that has been partially dissolved over time is known as *Karst Topography*. Karst topography is categorized by a wide variety of unique geologic features: sinkholes, disappearing streams, and caves are among the most often seen. These features exist because of the plentiful holes and cavities that are found throughout the bedrock.

Slightly north of the School Sinkhole is the much smaller Oscar's Sinkhole. Discovered in 1996 when the wheel of a tractor, driven by Oscar, sank through the turf and got caught in it. Oscar's Sinkhole was originally no larger than a dinner plate. It has grown slowly over several decades to the size that you see it at now.

## Florida Sinkholes vs. Wisconsin Sinkholes

The main difference is in the strength of the bedrock. In the state of Florida, sinkholes are infamous for forming quickly and suddenly in roads, under homes, and on golf courses. By contrast, the sinkholes in Wisconsin grow very slowly over time.

This is because the limestone bedrock of this area is much stronger than the limestone in Florida; it contains a high amount of the mineral dolomite, which is harder to dissolve than regular limestone. This creates smaller cavities beneath the earth that take longer to grow large enough to allow a noticeable amount of surface material to sink down into the ground.



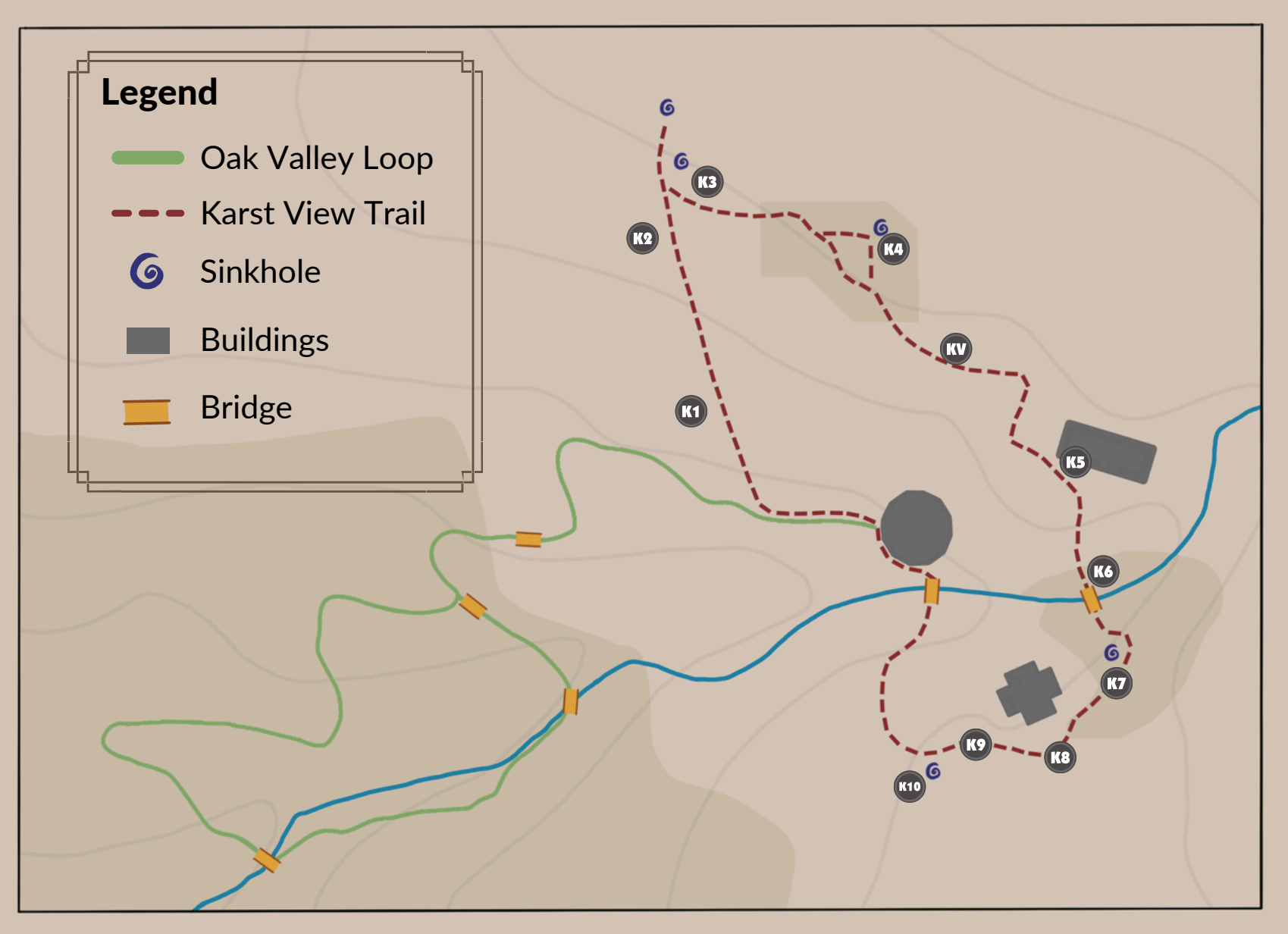
Want to learn more?



# BRIGHAM SINKHOLE



Photos of Brigham Farm during its operation as a homestead. The Brigham family kept the farm in operation until the 1980s.



This sinkhole is one of many at Cave of the Mounds. Although it is still active, Brigham Sinkhole is slowly coming to a halt. The trees and plants that have taken root within and around the sink are evidence of this, since plants typically need stable ground in order to grow.

## From the Small to the Massive

Because limestone is one of the most common rocks on Earth, sinkholes can be found throughout the world. They can vary a lot in size and shape. There are several contenders for "World's Largest Sinkhole" depending on if you consider width or depth to be the most important quality.

The *Qattara Depression* in Egypt is widely considered to be the largest in the world, as it has been measured to be over 84 miles (135km) wide and covers more than 2,700 square miles. One of the deepest sinkholes, *Xiaozhai Tiankeng* in China, is around 2,170 feet (661m) deep and has its own forest ecosystem hidden within. Scientists believe there may be previously undiscovered species living within the sinkhole.



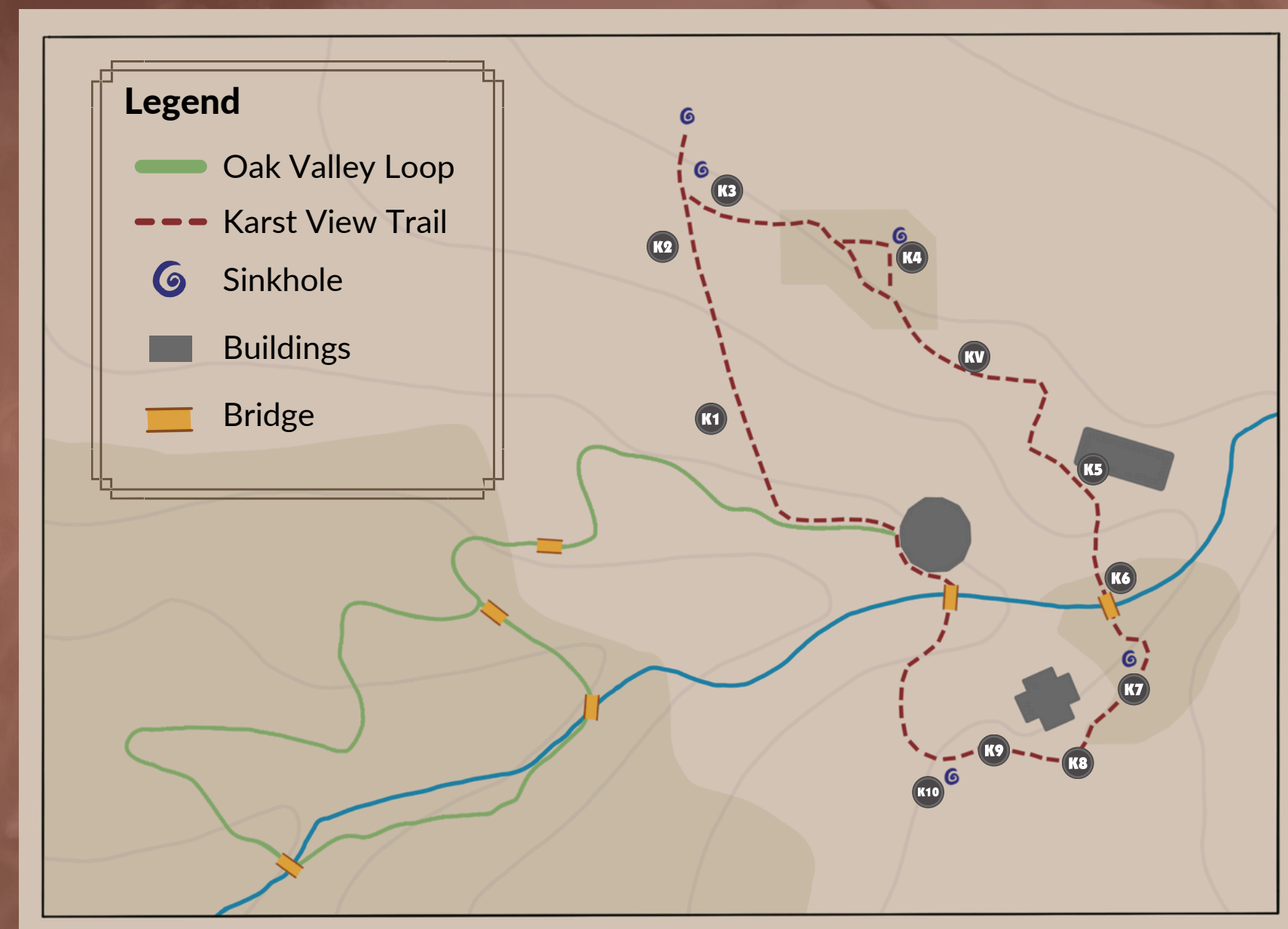
Xiaozhai Tiankeng Sinkhole

On rare occasions, heavy rains will erode the dirt within the sinkhole and allow for long-buried items to resurface: bottles and pottery are the most common, but other sinkholes in the park have revealed wagon wheels, farm equipment, and other interesting artifacts that were considered junk many years ago.



# PRAIRIES ARE LIKE PEOPLE. EACH ONE HAS SIMILAR CHARACTERISTICS, BUT EACH ONE IS ALSO AS UNIQUE AS A SNOWFLAKE.

*Cindy Crosby, 2017*



Native prairies are amazingly complex ecosystems with multiple stages of plant growth that make them a valuable resource for many different species all year long. Before European-Americans settled the Wisconsin territory, approximately 2.1 million acres or 6% of the total area of the state was native prairie. Today, a fraction of that remains. However, efforts of prairie enthusiasts across the state and nation are steadily changing that for the better.

The prolonged, continuous effort put forth by these prairie restorers is making a big difference to the land and the many pollinators that rely on the plants in these unique biomes. At our park, we have dedicated over two decades to re-seeding and maintaining our restored prairies and have a dedicated staff that spends their days ensuring the health of the plants and animals that exist here.

## Going Up In Flames

The prescribed, purposeful burning of prairie and savanna environments provides aid in many different ways. The fire prevents the build-up of dead vegetation and returns those nutrients to the soil, clears out any brush or trees that attempt to grow, hinders the growth of weeds, and refreshes the habitat for the animals and insects that call the prairie home.

For centuries, various Native American tribes across North America utilized prescribed burns to maintain the prairies around them for hunting and agricultural purposes. After many years of fire suppression, many prairie restoration initiatives are performing prescribed burns every 1 to 3 years. This interval keeps the fire "cool" because burning frequently stops the build up of materials, which would increase the intensity of the fire. Lower temperature fires have a lesser effect on wildlife.

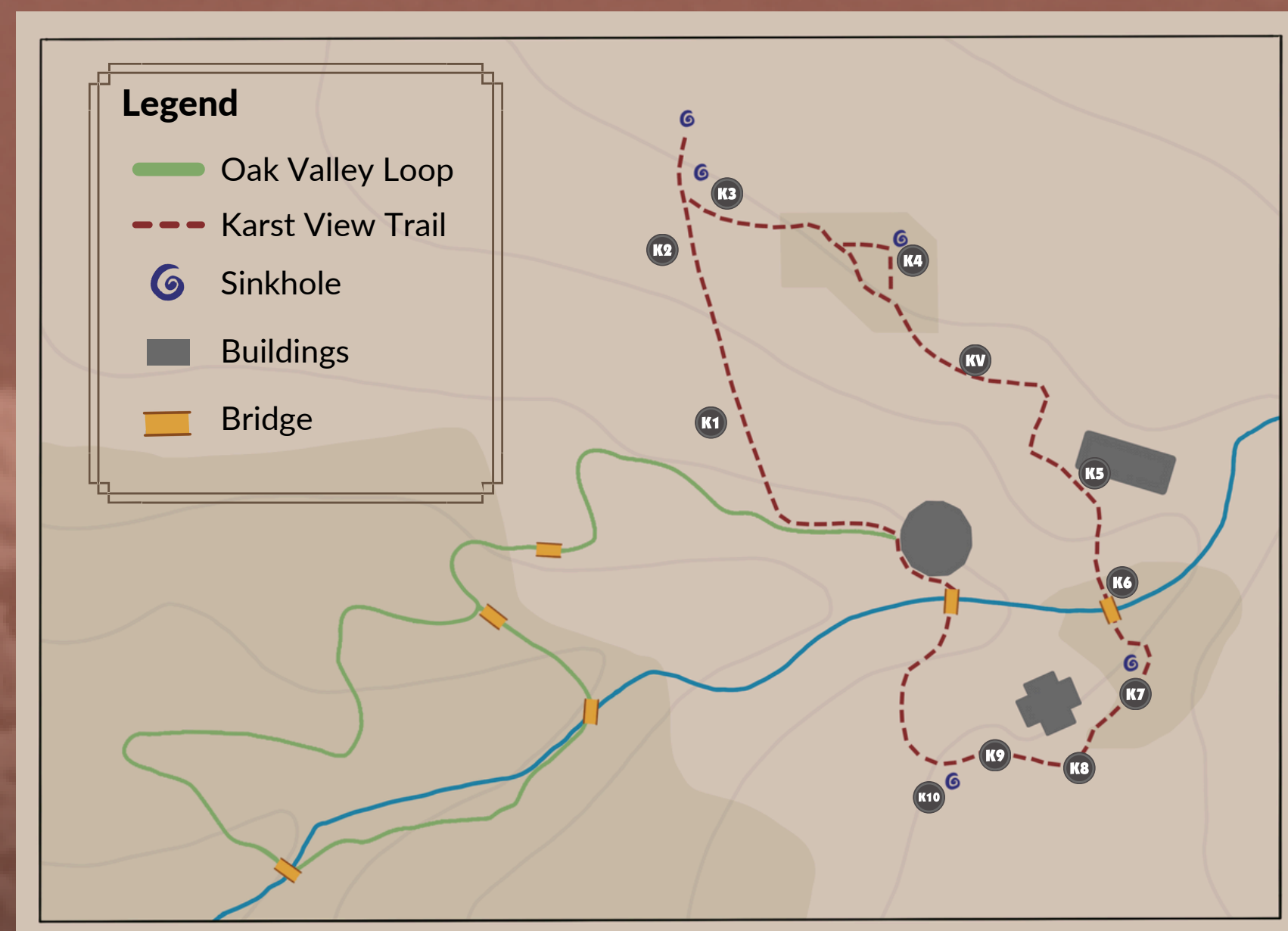


Want to learn more?



# DENIZENS OF THE LAND

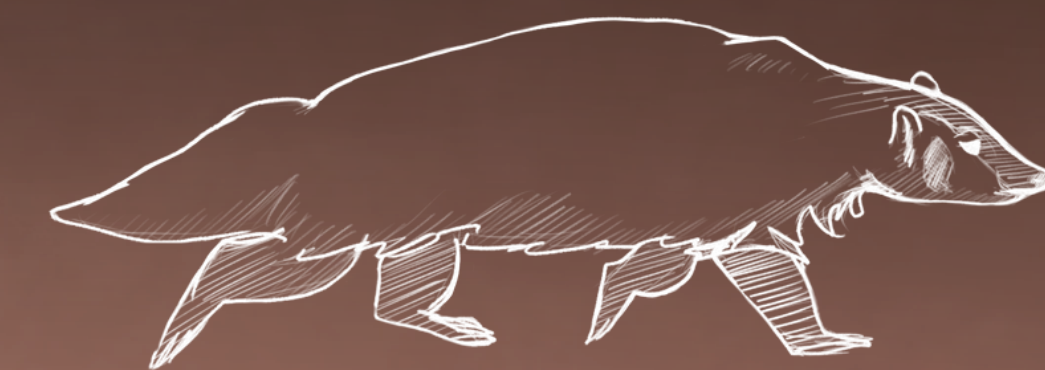
Cave of the Mounds was discovered accidentally in 1939 after a routine quarry blast on the old Brigham Farm. For centuries prior, the land above the cave was settled by various groups and peoples that decided to make the Blue Mounds their home.



Ebenezer Brigham was an entrepreneur that travelled from Massachusetts to St. Louis Missouri in the year 1818. In 1828, he became the first permanent European settler of Dane county and founded Blue Mounds as nothing more than a few buildings on top of the hill. During this time, his home was used as a trading post, stagecoach stop, and post office by all passers-by including soldiers, tradesmen, local natives, and settlers pushing west.

## Lead Mining Badgers

The Wisconsin Badgers are an icon of the Midwest. Their namesake is not the animal, but rather the various lead miners that operated in the territory during its early years. The miners would often sleep in makeshift burrows, crawling in and out between shifts in the mine much as the American badger digs underground for shelter.



Today, the land is owned and operated by the familial descendants of Ebenezer Brigham. Cave of the Mounds has partnerships with local conservation groups as well as the University of Wisconsin-Madison and the National Park Service, working toward its study and conservaton for years to come.

Want to learn more?



K5

Karst View Trail



**CAVE OF THE MOUNDS®**  
National Natural Landmark

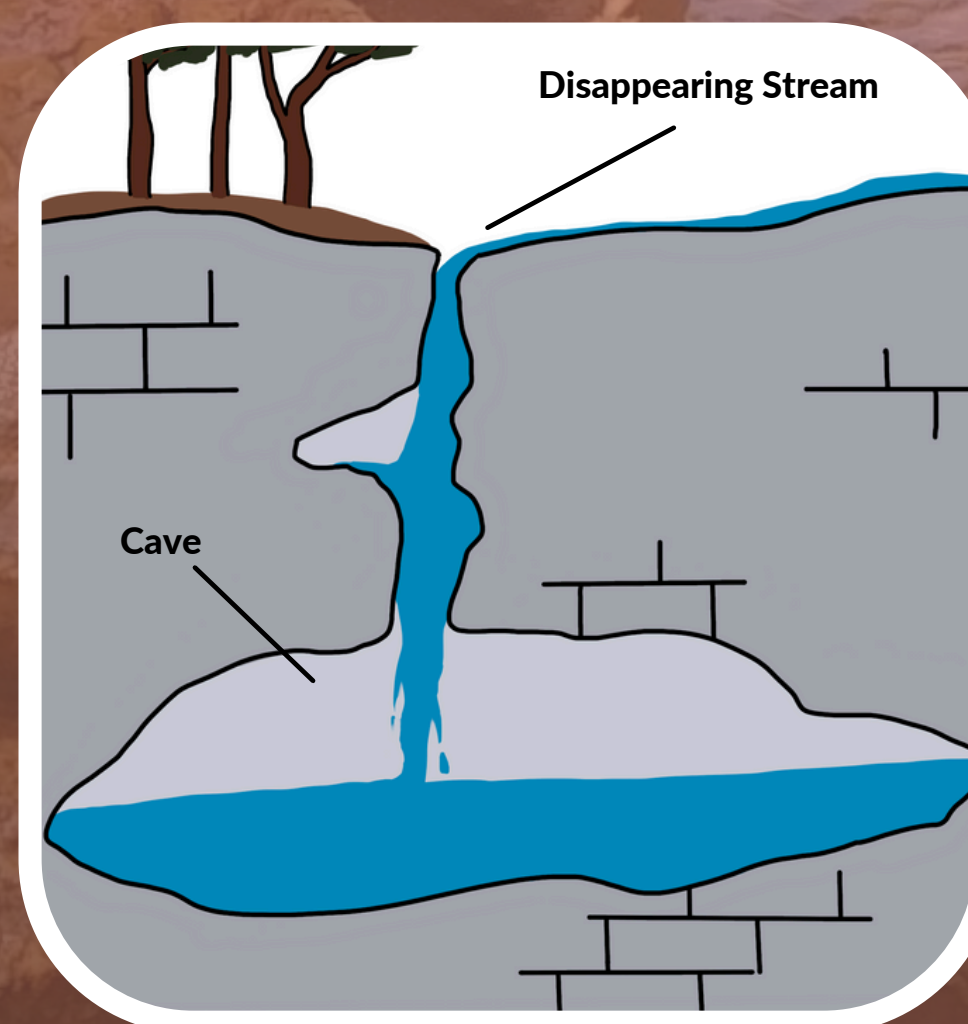


# AN AQUATIC MYSTERY

Karst Topography is an interesting, but common, phenomenon. Typically, rain water that has become mildly acidic from carbon dioxide in the air and soil flows down into the bedrock and slowly eats away at the minerals within, creating pockets and caverns hidden beneath the surface.

It is because of these holes that karst landscapes are known for having interesting geologic features such as sinkholes, caves, and streams that disappear entirely. Disappearing streams are a curious phenomenon. They flow for hundreds of feet before vanishing below the ground and occasionally resurfacing further downstream like a magic trick.

In reality, disappearing streams are flowing into large cracks, oftentimes sinkholes, that lead down into large, open cavities within the rock layer. Chert Creek, as you see before you, is one such stream; however, it does not flow into Cave of the Mounds. It continues to flow westward and disappears further downstream.



## Underwater Worlds

In some areas, significant amounts of water flow into or exist within underground caves. So much, in fact, that the cave must be explored with scuba gear. These are known as underwater cave systems, and they can be found all around the world.

Some of these caves are filled with water from subterranean rivers, which are the larger version of disappearing streams, and some are found beneath large bodies of water like lakes, seas, and oceans. The longest underwater cave system in the world, *Sistema Sac Actun* in Mexico, is nearly entirely underwater. It is also the second longest cave in the world at 234.1 miles (376.7km).

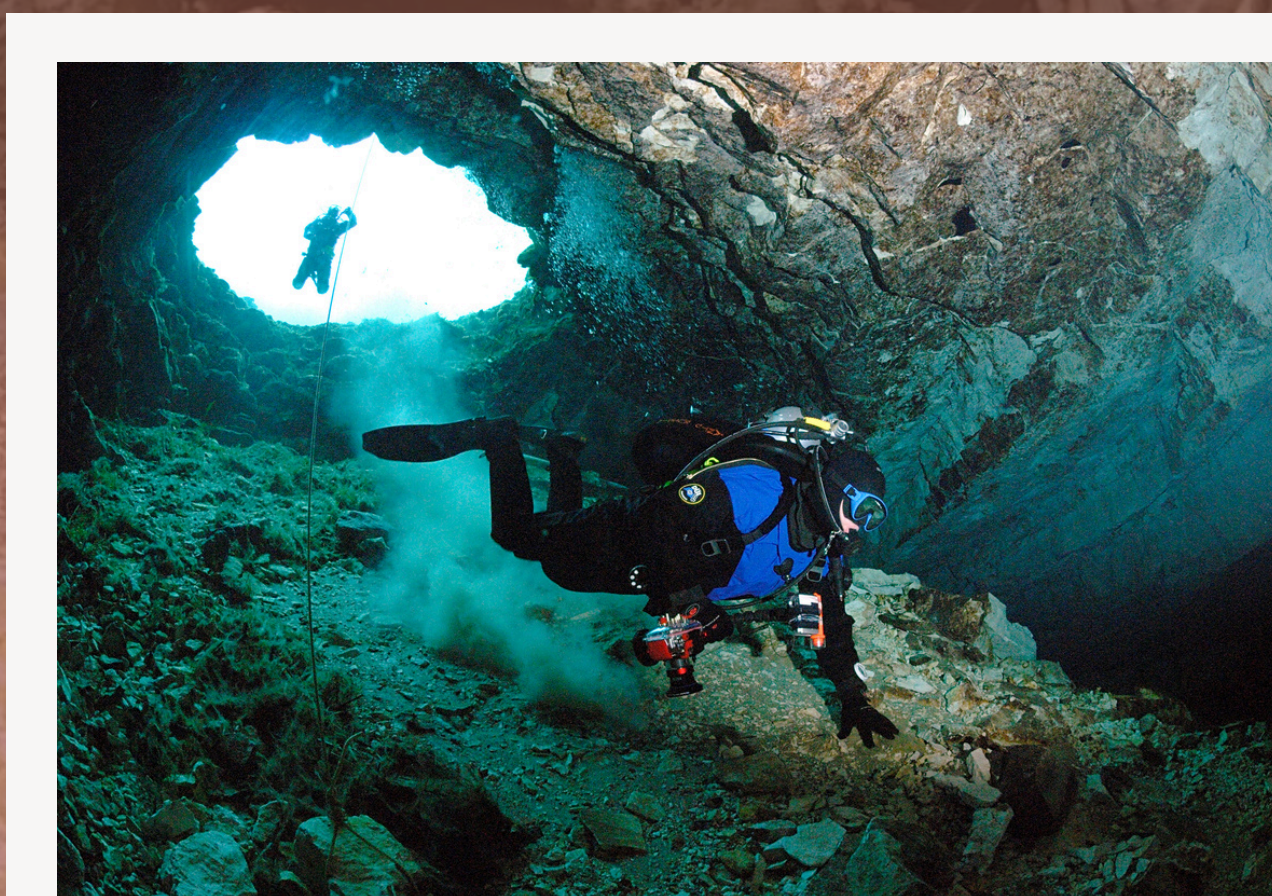
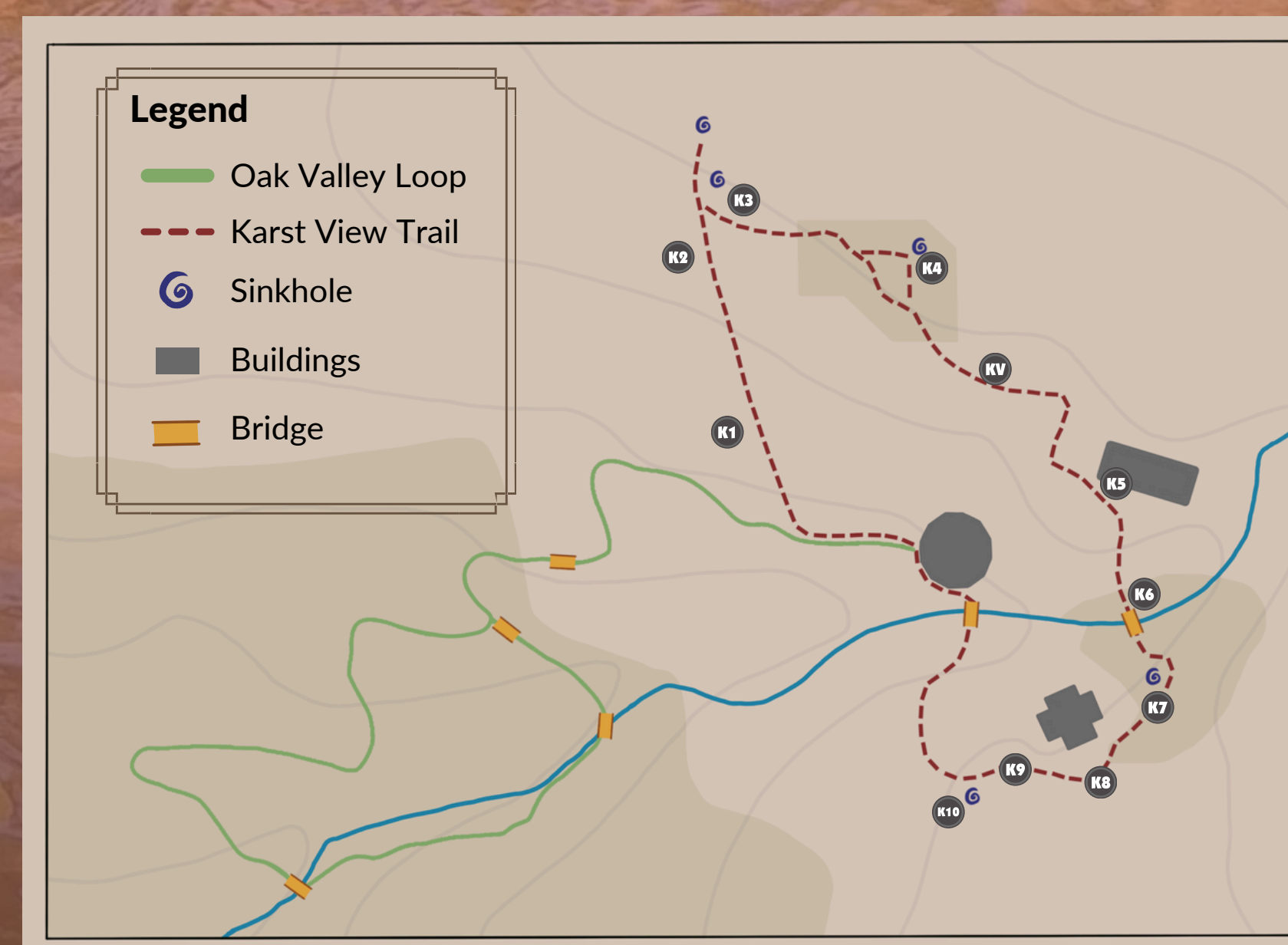


Photo By: Mikhail Vedyokhin, 2007



Want to learn more?

K6

Karst View Trail



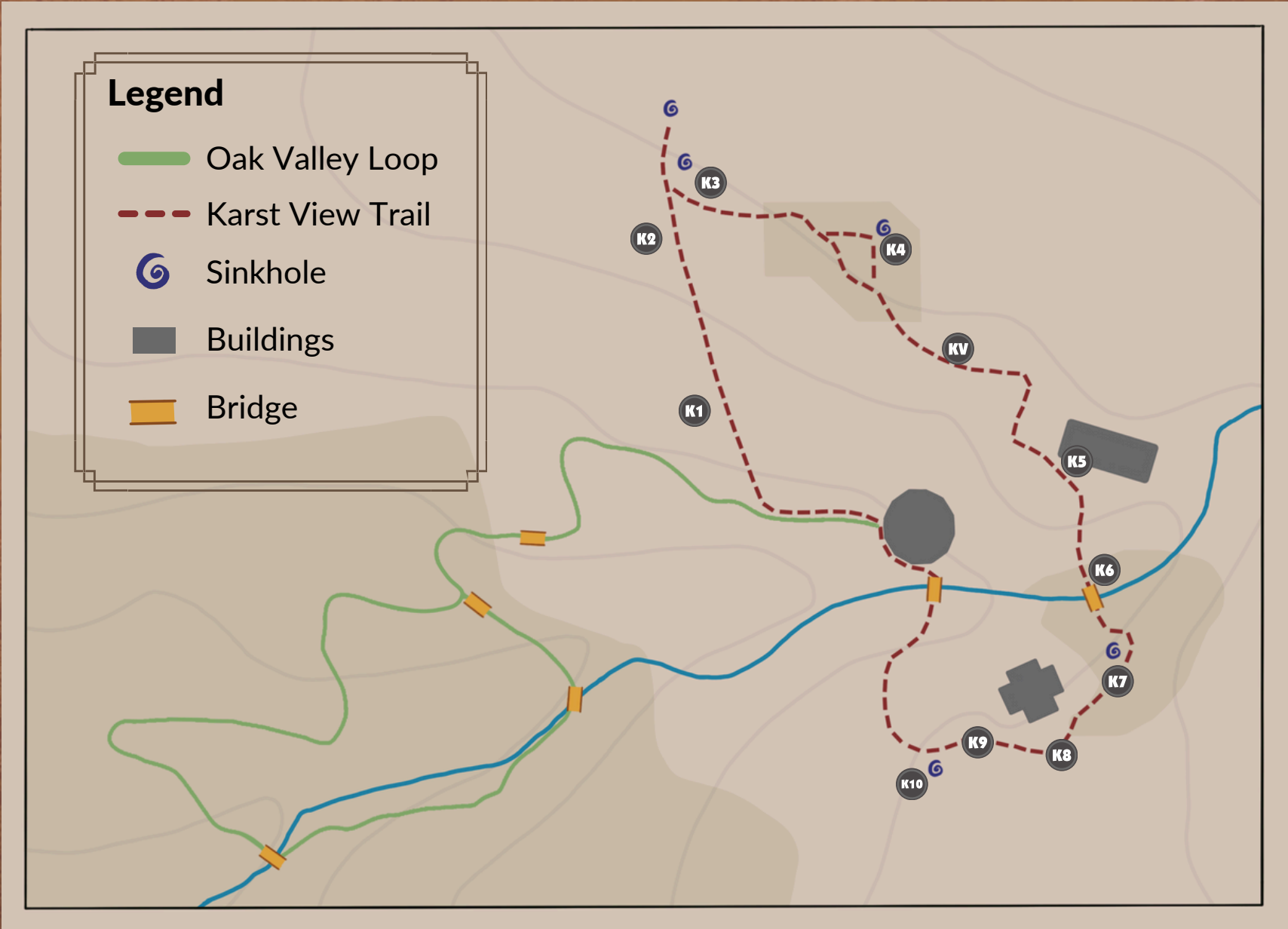
**CAVE OF THE MOUNDS**  
National Natural Landmark



# NORTH END SINKHOLE

Despite its subtle appearance, you are standing within a sinkhole. The North End Sinkhole sits directly above the North End Collapse in between the North and East caverns below. This was a natural weak spot which resulted in the very gradual collapse of the cave ceiling, forming this sinkhole above ground. This event occurred many thousands of years ago, and the sinkhole is no longer actively growing.

In the cave, you can see the formation that is below this sinkhole. A beautiful *flowstone* formation has formed on top of the debris left behind by this surface collapse. It is the *Painted Waterfall*, and it is characterized by vibrant colors from the minerals that have been deposited on the rocks and rubble from the collapse over the many years since this event occurred.



The Painted Waterfall formation

Want to learn more?

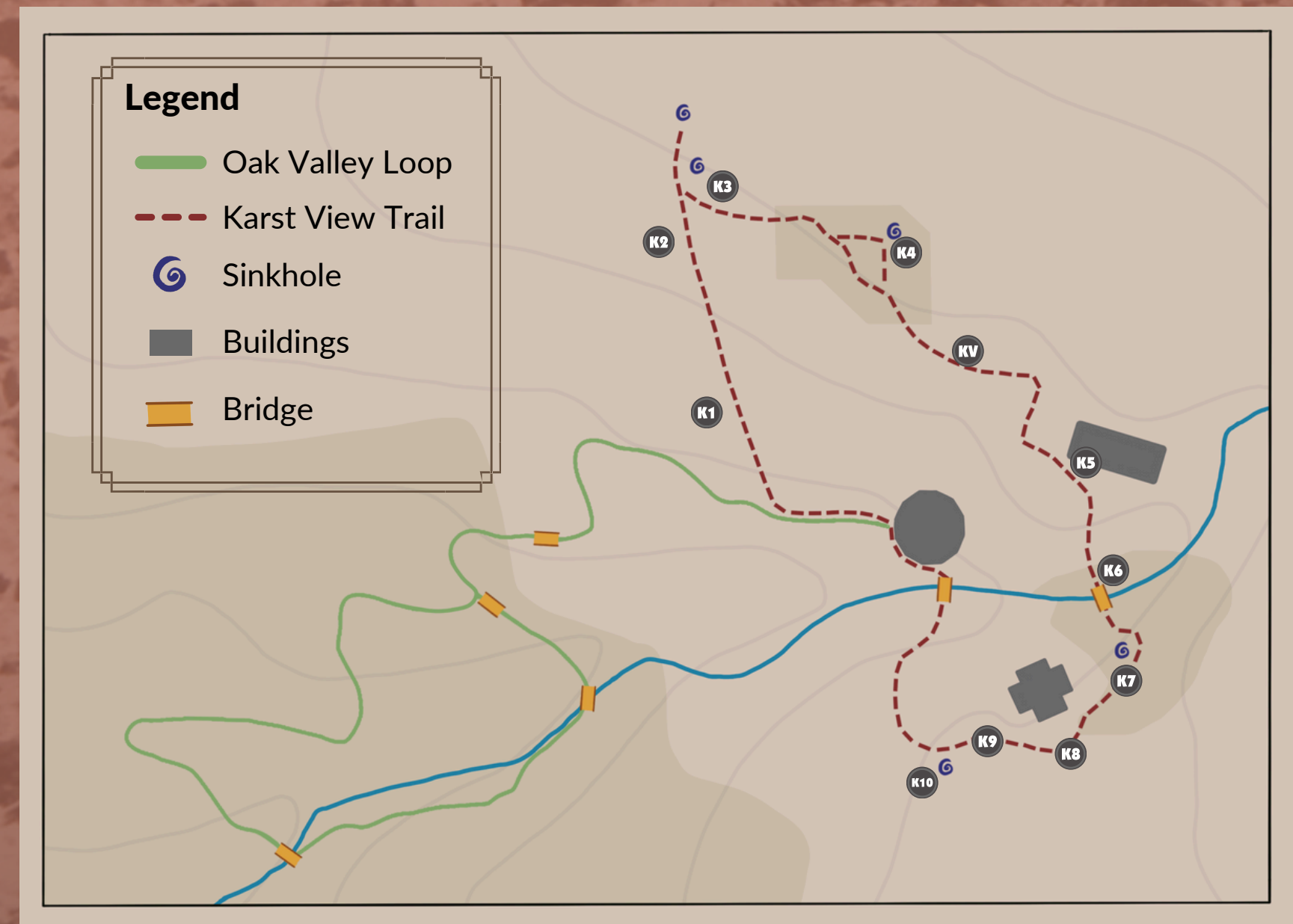




# DISCOVERY OF A LIFETIME

On August 4, 1939, workers on the Brigham Farm made an incredible discovery. When the dust settled after a routine quarry blast, they peered in amazement at a giant hole in the rock... a cave! This was the first time that the cave was seen by living eyes since its formation so long ago. Cave of the Mounds may have been an accidental discovery, but its purposeful, ongoing conservation has allowed millions of visitors to experience the same beautiful views that the first explorers saw all that time ago.

In 1988, we entered a private-public partnership with the United States Department of the Interior and the National Park Service that designated Cave of the Mounds as a National Natural Landmark. This recognized the cave as "...[possessing] exceptional value as an illustration of the nation's natural heritage and [contributing] to a better understanding of man's environment."



## A Cave In Your Backyard?

Wisconsin is home to over 400 individual cave systems. Karst Topography, the landscape of dissolved limestone within which Cave of the Mounds resides, is found throughout most of the southern part of the state, making solution caves a common occurrence.

Wisconsin also has several other types of cave. Most famously, it has *sea caves* that can be seen around the shores of the Great Lakes. Sea caves are eroded by the wave action of large bodies of water like Lake Superior and Lake Michigan.



Cave of the Mounds received over 58,000 visitors within a few months of opening in 1940.



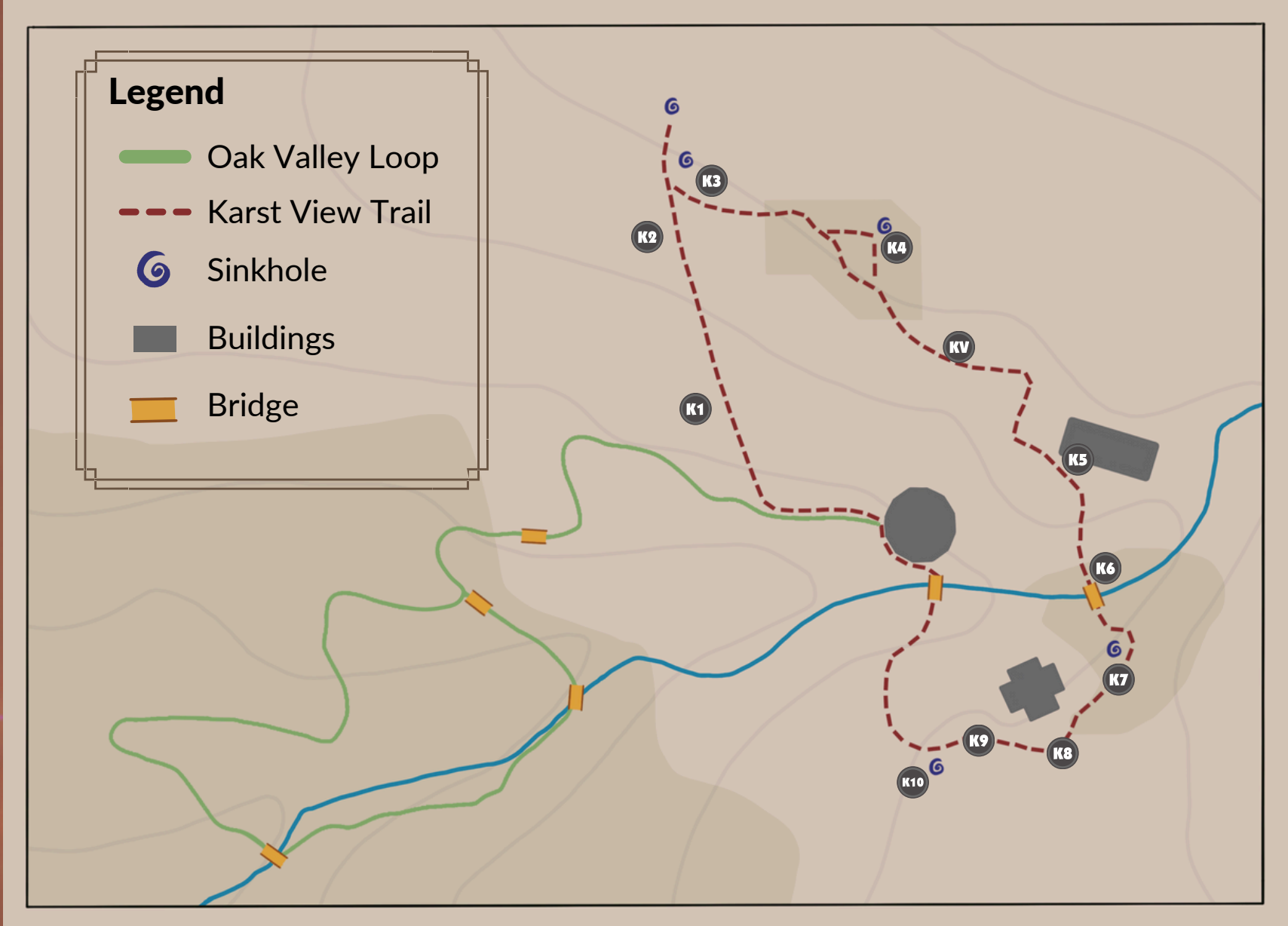
The original cave entrance building was short and squat, unlike the spacious building you see today.



Want to learn more?



# SOUTH END SINKHOLE



Originally sitting right around the location of our preserved oak stump, the South End Sinkhole is no longer visible above ground. Instead, the greatest evidence of its existence lies nearly 40 feet below you: the South End Collapse, found at the southernmost end of Cave of the Mounds.

Research efforts in the 1970's indicated that the South End Collapse has actually hidden nearly 300 feet of Cave of the Mounds from us, though it is believed that the entire section is fully collapsed and no longer accessible. While some digging efforts revealed some small areas of cavern, the project as a whole was abandoned when the ceiling in the artificial tunnel began showing signs of instability.

## Hunt for Caves with Electricity

Many types of tests were used in order to analyze the below-surface features hidden around Cave of the Mounds. One such test used electrical currents in order to test the density of the bedrock. By shooting electricity into the ground, scientists can measure the conductivity of each layer. This can tell them what the ground is made of as well as allowing us to "see" cavities within the rock because electricity cannot travel through air. This is known as Resistivity Testing.

