

(3) Ancient Stumps

Around AD 1900, a logging railroad operated a few miles west of Keyhole Sink. Lumberjacks painstakingly used two-person saws to cut the forest's largest and oldest "yellow belly" ponderosas.



As you hike to Keyhole Sink, you will see ancient stumps that were cut around this time. Since many of these ponderosas were about 300 years old at the time they were cut, they began growing around AD 1600! Since there are so few along this trail, and most of the living "black jack" trees you see are only 100 years old, foresters believe this area of the forest was mostly an open grassland interspersed with ponderosa pines.

(4) Windows into the Past

This region is the ancestral homeland to the native tribes including the Navajo, Hopi, Hualapai, Zuni, Havasupai, and Yavapai. You can find early evidence and footprints of some of Keyhole Sink's first residents in the ancient basalt lava rock.

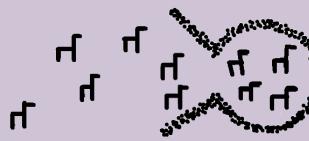


Petroglyphs, motifs pecked into the canyon walls, were likely left here by the ancestral Native Americans who archaeologists refer to as "the Cohonina," who lived in the area from about AD 700 to AD 1100. They are thought to be the ancestors of several of the aforementioned

tribes. Many of the petroglyphs at Keyhole Sink depict local wildlife to the area, including the Arizona Tree Frog which can often be heard here in the spring and summer.

Can you find the petroglyph that illustrates a deer herd entering the keyhole shaped lava flow?

Perhaps this petroglyph depicts the story of a successful hunt that took place over 1000 years ago.



(5) What is growing on the Aspen?

Oystershell scale is an invasive insect species threatening aspen stands across northern Arizona

Look closely at the bark of the aspen trees, and you may notice a tiny armored insects feeding on their host plant with mouth-parts that are several times longer than their bodies, enabling them to consume large areas of plant tissue. Oystershell scales can quickly overwhelm their host, even though they may not immediately be noticeable due to blending in well with the underlying



bark. With only about 2,000 total acres of aspen, Kaibab National Forest managers and partners in forest health are conducting research about how to effectively manage oystershell scale and preserve aspen on the landscape.

Please, return all self-guided interpretive hiking brochures to the trail kiosk.

For More Information or to Download this Brochure Please Visit:
<http://bit.ly/KeyholeSink>



United States Department of Agriculture

Welcome to Keyhole Sink

A Self-Guided Interpretive Hiking Brochure



Forest Service

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Visit with Respect

Archaeological sites encompass irreplaceable pieces of our cultural heritage. Please help preserve the legacy of this special place and its link to the past.

- Look! But don't touch - the grease and oils from your fingers can cause darkening and lead to irreversible erosion to the rock art.



In August 2010, vandals defaced the petroglyphs at Keyhole Sink. It took partners and volunteers several years to successfully remove the graffiti.

- Stay on designated trails.
- Never remove pieces of pottery or other artifacts. In their original context, artifacts tell stories about the past. Out of context, artifacts can lose much of their meaning.



- Treat sites with respect - modern tribes including the Hopi, Navajo, Havasupai, Hualapai, Zuni, and Yavapai, consider Keyhole Sink to be part of their ancestral homelands and they have a deep spiritual connection to this site.
- Practice leave no trace principles by taking only photographs and leaving only footprints.
- It is against the law to remove, deface, or damage archaeological materials on federal lands.

Welcome

We invite you to experience Keyhole Sink as an outdoor classroom and find your own connection to this special place - a part of our shared national legacy. Keyhole Sink is a rare oasis on the Kaibab National Forest.

It is a keyhole shaped lava flow with a pool of water at its base known for its seasonal waterfalls and abundant wildlife. When completely full, Keyhole Sink temporarily can hold about 60,000 gallons of water. The area has been utilized by people and animals alike since time immemorial and continues to attract visitors today.



On your hike to Keyhole Sink today, we invite you to stop at the trail's interpretative way-points to learn and explore the area's rich history.

(1) Our Changing Forests

The forest you see before you would have likely been unrecognizable a hundred years ago. Historical accounts and research suggests that this area was once an open grassland with sparse ponderosa pines.



The photo on the left, was taken in 1906, about 5 miles northwest of here.

What observations can you make when comparing this photo to today's forest?

What factors have caused the landscape to change?
Overgrazing, suppression of wildfires and early timber harvesting practices from the late 19th and early 20th centuries have greatly altered the landscape.

Can you guess how old the tree is standing before you today?

Using the science of dendrochronology (tree ring dating), foresters cored this tree and found it is approximately 100 years old and is a living remnant of the prolific 1919 ponderosa pine seed crop across the Mogollon Rim. This natural event created a monoculture of trees, lacking age and species diversity.



Historic sheep and cattle overgrazing, early timber harvest of the largest and oldest ponderosas, the 1919 seed germination and policies that suppressed all fires have created a forest that is susceptible to disease and unnaturally severe wildfires. The Forest Service is implementing the Four Forest Restoration Initiative (4FRI) to restore the structure, pattern, composition, and health of fire-adapted ponderosa pine ecosystems in this area. The goal is to reduce hazardous fuels and the risk of unnaturally severe wildfires, while providing for wildlife and plant diversity.

(2) Blackjacks and Yellowbellies

Can you identify this ponderosa pine using your sense of sight, touch, and smell?

Ponderosa pines are one of the few trees that change color and produce a sweet scent as they get older. The tree before you may be as old as 200 years. As ponderosas age their bark changes in color from black to yellow earning their nicknames "blackjacks" and "yellowbellies." In the spring and summer the trees give off a vanilla or butterscotch aroma. Give it a sniff!

