

Wupatki and Sunset Crater Volcano

National Monuments / Arizona

National Park Service
U.S. Department of the Interior



WUPATKI PUEBLO, NPS Photo

Life in a Changing Landscape

The people living just northeast of what is now Flagstaff, Arizona, must have been warned by tremors before debris exploded from the ground and rained down on their pithouses. The lava flows and erupting cinders that followed forced these farmers to vacate the rocky lands they had cultivated for 400 years.

A few generations later, at Wupatki and nearby Walnut Canyon, families returned to grow crops for another 100 years in the shadow of Sunset Crater Volcano. Slowly, plants and animals returned too, some specially adapted to living on the lava. By the late 1800s ranching and logging operations sustained the new populations settling Flagstaff, and the memory of the most recent eruption on the Colorado Plateau lived only in the stories of indigenous Southwest people. Today occasional earthquakes still remind local residents that they live in a geologically active

area. At Wupatki and Sunset Crater Volcano National Monuments, we contemplate how the environment and people change each other.

The remains of masonry pueblos, or villages, that dot the landscape of Wupatki are the most obvious evidence of the human endeavor in this expansive land. They tell of the 1100s when puebloan peoples came together to build a vast farming community. Some villagers may have migrated from drought-stressed areas on the Colorado Plateau to join people already living here. With the first eruption of Sunset Crater Volcano, the agricultural potential improved because the thin ash layer absorbed precious moisture and helped prevent evaporation, and a climate change provided more rainfall during the growing season.

After the Eruption of Sunset Crater Volcano

By 1180 thousands of people were farming on the Wupatki landscape. By 1250, when the volcano had quieted, pueblos stood empty. The people of Wupatki had moved on and established new homes. Many people traversed the high deserts of the Colorado Plateau over time, but few stayed long. Those who did adapted to the region's challenging environment. Their descendants still live nearby, including Hopi, Zuni, and Navajo people.

Nineteenth-century explorers such as John Wesley Powell marveled at the well-preserved pueblos and the stark but strangely beautiful volcanic landscape. With the founding of Flagstaff, travelers sought out these local attractions. Early visitors explored the lava flows and took rocks for souvenirs. Others looted the archeological sites. In 1928 filmmakers wishing to create a landslide at Sunset Crater Volcano inadvertently created a national monument instead. Activists, fearing irreversible damage to the volcano, pushed for protection of the area; and, in 1930, President Hoover established Sunset Crater National Monument (later renamed Sunset Crater Volcano National Monument) as part of the National Park System.

Years and thousands of volcano-climbing visitors later, the scarred mountain was closed to climbers. Now this cinder cone is recovering. Other nearby volcanoes, which are not in the monument, are mined for pumice and cinders or used for off-road recreation.

Survival in a Volcanic Landscape

Each time a volcano erupts, life begins anew. Like farming the high desert of Wupatki, establishing life in this environment may seem an impossible challenge. But a closer look reveals a pink penstemon radiant against the

black rock, its species unique to this rugged terrain. Ponderosa pines, their growth stunted by harsh conditions, offer habitat for Abert's squirrels.

Lichen adds a touch of color and slowly converts rock to soil. The volcanic landscape reminds us that only change is constant. It is mute testimony to the forces that will undoubtedly affect the land and its inhabitants again.

Sunset Crater Volcano: Birth of a Mountain

Erupting sometime between 1040 and 1100 Sunset Crater Volcano is the most recent in a six-million-year history of volcanic activity in the Flagstaff area. This cinder cone reminds us of the powerful forces that shape the Earth—forces that have created more than 600 hills and mountains in the San Francisco Volcanic Field. These mountains have in turn affected the climate and habitat for all things living in this region.

What is now a 1,000-foot-high volcano began to form when molten rock sprayed high into the air from a crack in the ground, solidified, then fell to Earth as large bombs or smaller cinders. As periodic eruptions continued, the heavier debris accumulated around the vent. The lightest, smallest particles were carried the farthest by wind, dusting 800 square miles of northern Arizona with ash. Perhaps as spectacular as the original eruption were two lava flows: the Kana-a and the Bonito. They destroyed all living things in their path.

The processes that created Sunset Crater Volcano also created a sculpture garden of extraordinary forms at its base. As new gas vents opened, spatter cones sprouted from the ground—like miniatures of the volcano itself. Partially cooled lava, pushing through cracks in the crust like toothpaste from a tube, solidified into wedge-shaped



VIEW FROM LENOX CRATER, *NPS Photo*

squeeze-ups, grooved from scraping against harder rock.

The entire event may have lasted six months to a year. In a final burst of activity red and yellow oxidized cinders shot out of the vent and fell onto the rim. The colorful glow from these cinders reminded people of a sunset and led to the volcano's name.

Formation of a Cinder Cone

Cinder cones, such as Sunset Crater Volcano, are formed during early explosive stages of an eruption. Magma, a mixture of molten rock and highly compressed gases, rises upward from its underground source. As the magma ascends, the extreme pressure drops and gases are released. The high percentage of gas in the magma causes an explosion

out of the central vent. Solidified rock pieces of various sizes fall around the vent, creating a mound or cone. Magma with a lower gas content produces lava flows that may issue from the side or base of the cone.

Wupatki: A Mosaic of Southwestern Cultures

The past peoples of Wupatki lived as beneficiaries of the land over which they made epic migrations. In a region of scarce water and climate extremes, they developed self-sustaining cultural and economic systems. The result is a complex story of people interacting with their environment and with each other to live successfully where many would not.



SUNSET CRATER VOLCANO WITH SUNFLOWERS, *NPS Photo*

Imagine raising corn planted in nutrient-poor soils, in a land where tantalizing thunderstorms build—but often cheat crops of rain. Despite a beneficial ash fall from Sunset Crater Volcano, farming at Wupatki during the 1100s was decidedly marginal. Only the diligent succeeded, and trade with others was vital.

Archeologists coined the term Sinagua for the cultural tradition of this area, reflecting the people's ability to farm and live virtually "without water."

Life here involved sharing and trading. Located at the crossroads between Sinagua, Cohonina, and Kayenta Anasazi cultural traditions, Wupatki exhibits a unique cultural brew. We see

the exchange of ideas in homes built the Anasazi way but furnished with Sinagua-style pottery, textiles, and tools. Archeologists still debate whether this represents different cultures interacting here, or if it is just the "many different ways to be Sinagua."

For a time, this land provided the necessities for life. It also imparted strength and humility. As the people resumed migrations and relocated east to the Hopi mesas or perhaps south to the Verde Valley, they took their way of life with them—a way of living that has enabled Pueblo people to survive on the Colorado Plateau for the past 2,000 years.



ABERT'S SQUIRREL, *NPS Photo*

Wupatki Pueblo

Homes ranged from one-story, single-family structures to Wupatki Pueblo, a multi-level, high-rise. This largest dwelling in the area had about 100 rooms.

The environment provided materials ideal for the construction of freestanding masonry dwellings. Sandstone slabs, limestone blocks, and chunks of basalt set with a clay-based mortar yielded sturdy buildings that, despite weathering and vandalism, remain partially intact more than 700 years after their owners departed.

Exploring Wupatki and Sunset Crater Volcano

The landscape that shaped the lives of people 800 years ago appears unchanged in many ways since the eruptions. The lava flows near Sunset Crater Volcano seem to have hardened to a rough surface only yesterday. From a distance the pueblos at Wupatki National Monument look as though they could still be occupied. But many processes have been at work, reshaping the land into what we see today.

Volcanism, tectonics, and erosion have created dramatic geological formations and abrupt changes in elevation and

climate. As you travel the loop road between Sunset Crater Volcano and Wupatki National Monuments, the environments range from desert to mountain. Ecosystem changes are distinct and frequent. These changes within a relatively short distance greatly increase the biological diversity of the area—a diversity that was indispensable to early residents.

Residents, in turn, transformed the land as they harvested the wood for homes and fuel, hunted and gathered wild foods, and introduced cultivated crops. Later, Navajo families settled the Wupatki area and brought sheep to the land. Beginning in the 19th century, newcomers introduced cattle, tapped ground water supplies and interrupted the natural processes of wildfire. As a result, juniper trees have invaded grasslands; ponderosa forests are no longer open and spacious but dense with undergrowth; some seeps and springs no longer flow.

These habitat changes have affected some species and created new niches for others. In the higher elevations among the ponderosa pine, Abert's squirrels and vivid blue Steller jays are common. Middle elevations support pinyon pine, one-seed juniper, and grasslands, along with jackrabbits and pronghorn antelope. In the lower lands, the more sparsely vegetated high desert community is home to lizards, snakes, coyotes, and bobcats.

As part of the National Park System, Wupatki and Sunset Crater Volcano National Monuments are managed to perpetuate this geologic landscape that preserves increasingly rare habitat for native plants and animals and to protect past human developments and their relationships to the land.

About Your Visit

Wupatki National Monument protects the ancient dwellings of puebloan peoples. It occupies 56 square miles of dry, rugged land on the southwestern Colorado Plateau directly west of the Little Colorado River. Sunset Crater Volcano National Monument features a 1,000-foot volcanic cone and its lava flows.

Location, Hours, and Facilities

Sunset Crater Volcano and Wupatki National Monuments are reached via U.S. 89. Their entrances are located 12 miles and 26 miles north of Flagstaff, Arizona. The monuments are connected by a 35-mile loop road. A single entrance fee covers both monuments.

Sunset Crater Volcano Visitor Center, two miles east of the park entrance off U.S. 89, has information, exhibits, and a seismograph station.

Wupatki Visitor Center, 14 miles southeast of the park entrance off U.S. 89, has exhibits and displays of artifacts.

The visitor centers are open daily except December 25; hours vary seasonally. Trails are open daylight hours only. Note: this part of Arizona stays on Mountain Standard Time year-round.

There are no gasoline stations, restaurants, or overnight accommodations in either monument. Full services are available in Flagstaff and along U.S. 89.

Several picnic areas are located along the loop road. Open fires are allowed only where fire grates are provided. Wood collecting is not permitted.

Camping

The U.S. Forest Service operates Bonito Campground near Sunset Crater Volcano. The facilities include running water and restrooms, but there are

no showers or trailer hookups. The campground is open from late spring through early fall. For additional camping information contact: Coconino National Forest, Peaks Ranger Station, 5010 N. Hwy. 89, Flagstaff, AZ 86004: <http://www.fs.usda.gov/coconino/>

What to See and Do

A driving tour of both monuments takes one to two hours. To walk the trails and stop at the visitor centers, allow three to four hours. At Sunset Crater Volcano, the one-mile Lava Flow Trail at the volcano's base allows you to see a variety of features. Sunset Crater Volcano is closed to climbing to protect its fragile resources. You may climb other cinder cones in the area, such as nearby Lenox Crater and Doney Mountain at Wupatki.

Ask at the visitor center for hiking information. A short self-guiding tour of Wupatki Pueblo, the largest dwelling in that monument, begins behind the visitor center. Other sites are also reached by trails: Lomaki Pueblo is a half-mile off the main loop road; Citadel and Nalakihi pueblos are next to the road. A 2½-mile spur road leads to Wukoki Pueblo. All other sites are closed to protect the fragile archeological resources.

Accessibility

Some features in both monuments are accessible for visitors with disabilities. Ask at the visitor centers for more information.

For Your Safety and to Protect the Monuments

- All plants, animals, and archeological objects in the monuments are protected by federal laws; there are substantial fines for damage to or removal of these resources.
- Pets must be kept on a leash at all times; they are not allowed in

buildings or on monument trails. Nearby national forest lands offer an alternative for people traveling with pets; please inquire. The summer heat is intense; pets left in vehicles—even for a short time—can suffer heat stroke and die.

- The loop road through the monuments is narrow and winding, with soft shoulders. Stop only at designated pullouts. The speed limits are reduced for the safety of pedestrians and wildlife. Both monuments are at a high elevation and road surfaces can freeze quickly in winter.
- Stay on the trails to help prevent erosion and to protect the fragile resources, such as the plants and animals that live here. Off-trail travel is not permitted in either monument. Lava is sharp, brittle, and unstable. A fall on cinder or lava is not a pleasant experience.

For More Information

Walnut Canyon, Wupatki, and Sunset Crater Volcano National Monuments are administered as the Flagstaff Area National Monuments from a headquarters in Flagstaff, Arizona.

Flagstaff Area National Monuments
6400 N. Highway 89
Flagstaff, AZ 86004
928-526-1157

Wupatki National Monument
928-679-2365; www.nps.gov/wupa

Sunset Crater Volcano National Monument
928-526-0502; www.nps.gov/sucr

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