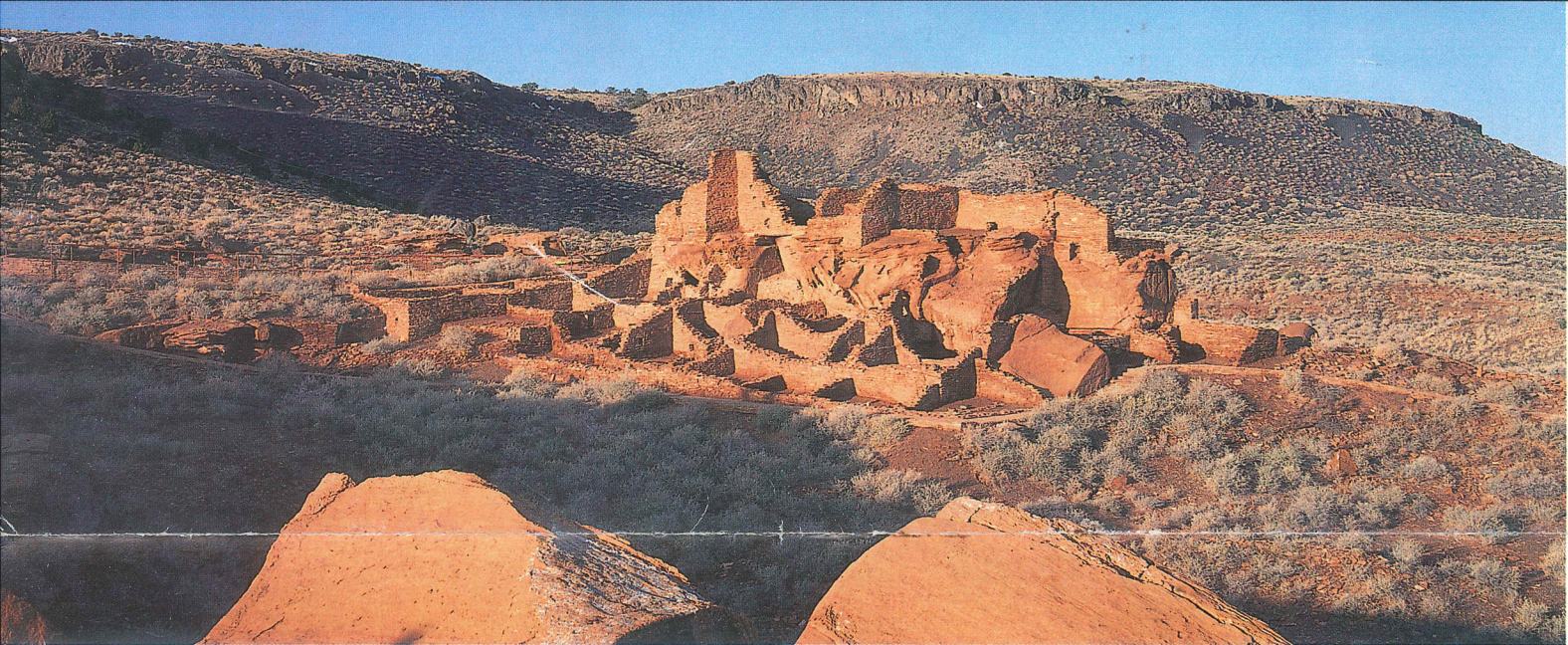


Wupatki Sunset Crater Volcano



©LAURENCE PARENT

Wupatki Pueblo was built and occupied during the 1100s. The high desert offered challenges and possibilities for these pueblo dwellers.

Life in a Changing Landscape

The people living just northeast of what is now Flagstaff, Ariz., 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. 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 of these 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, 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.

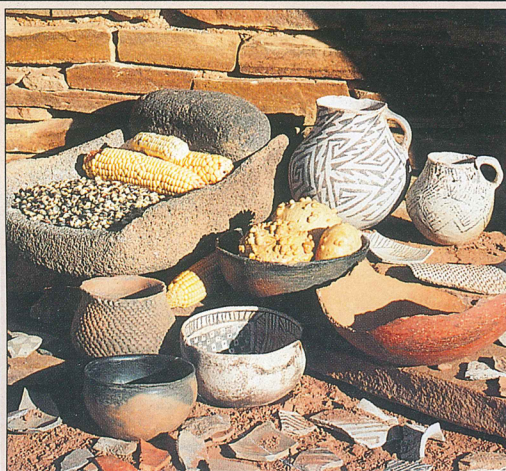
By 1180 thousands of people were farming on the Wupatki landscape. By 1250, when the volcano had quieted, pueblos stood empty. The people of Wupatki had moved on and established new homes. Many people traversed the high deserts of the Colorado Plateau over time, but few stayed long. Those

Wupatki: A Mosaic of Southwestern Cultures



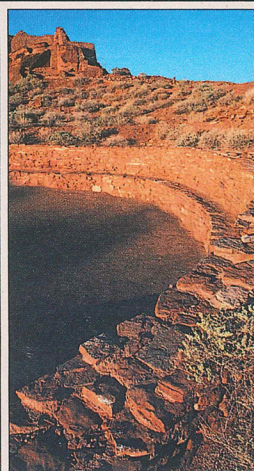
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Collared lizards, commonly seen in spring and fall, are easily photographed.



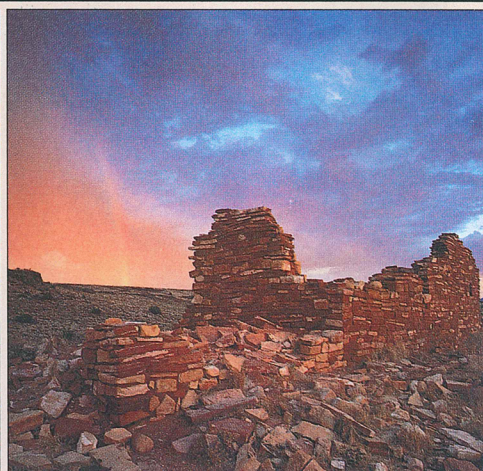
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At least 125 different types of pottery have been found at Wupatki.



NPS

The community room at Wupatki Pueblo served as a gathering place.



©GEORGE H.H. HUEY

On Antelope Prairie, in the western part of the park, builders used both

limestone and sandstone in their dwellings.

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.

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, 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.

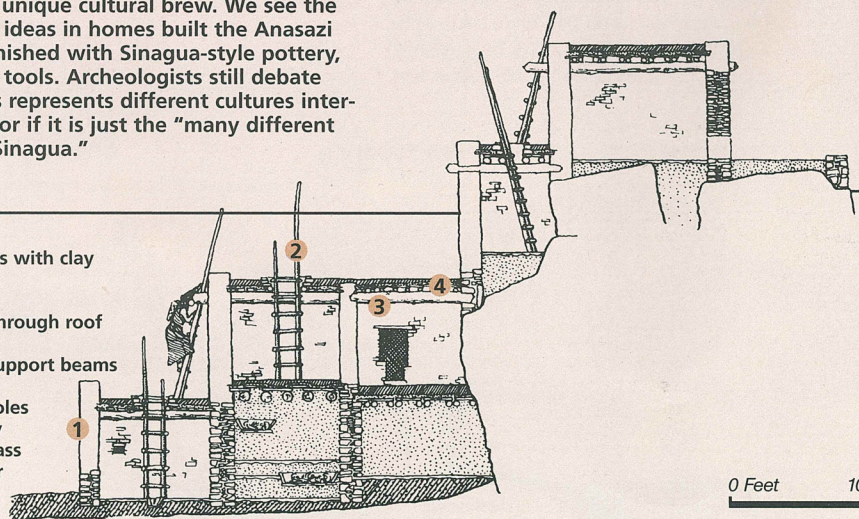
Wupatki Pueblo

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

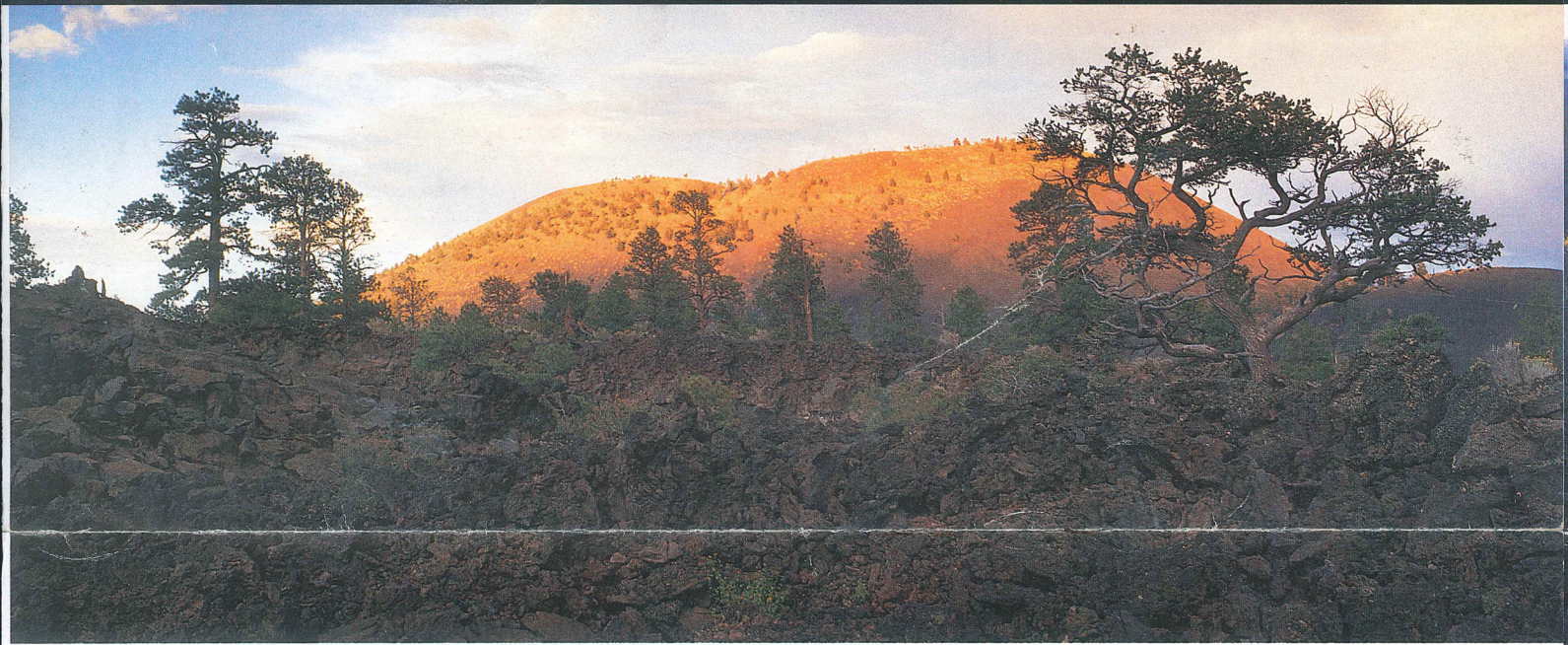
The environment provided materials ideal for the construction of freestanding masonry dwellings.

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.

- 1 Stone walls with clay mortar
- 2 Entrance through roof
- 3 Wooden support beams
- 4 Support poles covered by shakes, grass and clay or adobe



0 Feet 10



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More than 900 years after the last eruption, vegetation is slowly returning to the landscape of Sunset Crater.

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 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 park, are mined for pumice and cinders or used for off-road recreation.

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: Birth of a Mountain



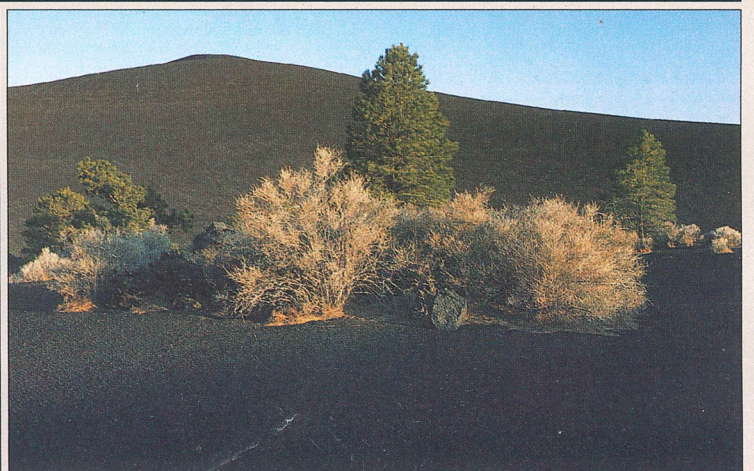
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Snowfall, while heavy at times, melts quickly on the dark volcanic rocks.



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After an eruption, lichens begin breaking down rock into soil.



©KATHLEEN NORRIS COOK

As cinders erupted from Sunset Crater they blanketed older volcanos,

creating cinder dunes.

Erupting sometime between 1040 and 1100 Sunset Crater 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 light-

est, 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 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 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, 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.

- 1 Magma (molten rock and gases)
- 2 Central Vent
- 3 Cloud of ash, cinders, and bombs
- 4 Cone formed from larger lava fragments
- 5 Lava flow from base of volcano

