

# Flagstaff Area National Monuments

Wupatki, Sunset Crater Volcano, and Walnut Canyon

National Park Service  
U.S. Department of the Interior



## Ancient Times

Park News 2006 - 2007



## Programs in Partnership

The view is breathtaking from the Arizona Snowbowl, where the ski lift, operating in summer as the Skyride, transports visitors to an 11,500-foot-high-perch on Mount Agassiz. Here, on the state's highest mountain, the air is thin, and plants like the San Francisco groundsel thrive in the alpine tundra, a leftover from the last ice age. Close by, centuries-old bristlecone pines stoop from decades of tortoise-like growth in the ice, wind, and snow. Human visitors, dressed for the warmer temperatures below, shiver in their summer shorts and shirts.

The interpretive ranger posted on the mountain has plenty of material to work with – this is one of the few places on earth where the four primary types of volcanoes (strato, lava dome, cinder cone, and shield) can easily be seen together. A semi-circular view extends north 70 miles to include a horizontal beige stripe that is actually the face of the North Rim inside the Grand Canyon. The panorama stretches west more than 100 miles to Arizona and Nevada mountain ranges along the lower Colorado River. To the south are Oak Creek Canyon and the jagged ridges of Sycamore Canyon, some of our nation's most wild and trea-

sured places. To the east, although not visible from here, are the three Flagstaff Area National Monuments – Wupatki, Sunset Crater Volcano, and Walnut Canyon.

Flagstaff is the only American city with three national monuments on its doorstep. At the same time, it is surrounded by the 1.8-million-acre Coconino National Forest. Elevations range from 2,600' in canyon bottoms to 12,633' at the top of the San Francisco Peaks. These federal lands are managed by two different agencies, but they share many similarities. Forests, wildlife, archeological sites, and other features stretch across this vast landscape, regardless of artificial boundaries.

For the past 16 years, from Memorial Day through Labor Day, seasonal rangers from the National Park Service (NPS) and U.S. Forest Service (USFS) have joined forces in an effort known as the Interpretive Partnership. Partnership rangers don't just work at the top of the ski lift. They also provide weekend campfire programs, informal ranger talks, and nature walks at three popular Coconino National

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top: NPS and USFS rangers present interpretive programs at the Arizona Snowbowl and elsewhere.

above: Kim Watson, NPS, (left) and John Nelson, USFS, joined forces to create the Interpretive Partnership in 1990.

### 4 Meet an SCA

Members of the Student Conservation Association contribute 1.2 million hours of volunteer service each year.

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Fire is here to stay. How can we live with it?

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Western National Parks Association supports educational programs through publication sales.

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left: Clouds form over the San Francisco Peaks, looking west from Bonito Park, near Sunset Crater.

## Welcome

Welcome to the Flagstaff Area National Monuments! Walnut Canyon, Sunset Crater Volcano and Wupatki National Monuments are special places that reveal a part of the rich history of the American Southwest. These monuments will be preserved for current and future generations so that their cultural and natural histories can be told.

The preservation of the monuments is a joint venture between the National Park Service and the people who visit the parks. We must all act as stewards of these irreplaceable places and resources if we are to share them with those who come after us.

The mission of the National Park Service (NPS) is "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of future generations." To meet this legislative mandate, we continually evaluate the management of these lands and resources. As one of over 270 million visitors each year to the NPS system, you must also make decisions about using and caring for these pieces of America's heritage. Please begin by treating the parks gently during your visit.

By paying your entrance fee, you support many of our stewardship projects, such as exhibit rehabilitation and trail maintenance.

We thank you for your assistance and support, and hope that you enjoy your visit to the Flagstaff Area National Monuments!

Palma E. Wilson  
Superintendent

## People & Parks

### Your Entrance Fees

The Federal Lands Recreation Enhancement Act, which took effect on December 8, 2004, allows the Flagstaff Area National Monuments to keep 80% of the entrance fees collected here. This money is used for in-park projects to improve facility maintenance, visitor services, and resource protection. Recent projects have included new exhibits at the Wupatki and Sunset Crater Volcano Visitor Centers, boundary fencing at Walnut Canyon, and restroom improvements.

The Act also provides for periodic fee increases, to keep pace with the Consumer Price Index. At this time, the Flagstaff Area National Monuments are scheduled for entrance fee increases in 2008, following opportunities for public comment.



### Are you a VIP?

We're looking for enthusiastic, friendly people committed to assisting park employees in different areas of park management. A variety of volunteer opportunities exist year-round at the monuments. Volunteers-In-Park (VIPs) can work full-time or part-



time. Housing or RV hook-ups are sometimes available. If you have a special interest or skill, chances are we could use your talents. For more information, contact the Flagstaff Area National Monuments Volunteer Coordinator at 928-526-1157 x 221

### Support Your Parks with WNPA Membership

Interested in supporting the educational programs of the National Park Service? Consider buying a membership to Western National Parks Association, our nonprofit cooperating association. WNPA members enjoy a 15% discount on bookstore purchases, and memberships are honored throughout the National Park System. An annual individual membership costs \$25. Memberships may be purchased at park visitor centers.



# House Rules

Northern Arizona is covered with archeological sites. The dry climate of this region has allowed artifacts and sites of past human activity to survive decomposition and the forces of erosion for hundreds of years.

Our decisions and actions will determine whether these priceless and nonrenewable traces of the past will exist into the future.

As a guest in these homes, please remember these basic house rules:

### By Invitation Only

Visit only sites on designated trails. These have been stabilized and reinforced and are better able to withstand visitation.

Stay on designated trails. Walking through and around sites is one of the most damaging impacts; it rapidly undermines wall foundations and crushes fragile archeological objects and deposits.

### Off-trail hiking is prohibited.

### Keep Your Feet Off the Furniture

Sitting, leaning, walking, or climbing on walls loosens mortar which erodes easily. Walls collapse.

Minimum fine: \$50

### Don't Take the Knickknacks

Parks are not the place to collect rocks, fossils, animals, or plants. Imagine the result if each of the half million visitors a year to the Flagstaff Area National Monuments took something home. The parks would be stripped bare.

Minimum fine: \$250

### Don't Rearrange the Furniture

Left in place, pieces of pottery and artifacts are valuable clues; rearranged in piles they mean nothing. This behavior deprives other visitors of the thrill of discovering artifacts where they were left generations ago.

Minimum fine: \$250

### Sign the Register Not the Rocks

Adding names or drawings to rock outcrops, rock art panels, or structures dishonors the timeless qualities of these special places. Our visitor centers have guest registers where we invite you to leave your mark.

Minimum fine: \$250



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U.S. Department of the Interior

## Flagstaff Area National Monuments

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The National Park Service cares for the special places saved by the American people so that all may experience our heritage.

# Catching Glimpses of the Past

Walnut Canyon. Sunset Crater Volcano. Wupatki. Three national monuments with very different landscapes. As we look up at Sunset Crater's cinder cone, down into Walnut Canyon, and out across the Wupatki grasslands to the Painted Desert, we wonder: how are these places connected?

## NATURAL LEGACY

At all three monuments, the earth's varied geologic past lies exposed before us. These landscapes were shaped by the violence of volcanic eruptions and by the slow erosion of older rock layers, which in turn reveal evidence of ancient seas and sand dunes. Within canyon walls and in broad scenic vistas, we glimpse features from the distant past, and the diversity of plants and animals that have adapted to live here today.

## GLIMPSES OF THE PAST

For thousands of years, people too have found ways to live in these places,

adapting to an arid environment and learning new skills. When Sunset Crater Volcano erupted in the 1000s, there were people here to see it; the event changed their lives, and influenced settlement at Wupatki and throughout the region. The pueblos of Wupatki and the cliff homes of Walnut Canyon contain information that fuels archeological theories and confirms the stories and traditions of present day American Indian peoples, who still have strong ties to these places. By visiting these sites, we can experience something of the lives of people here before us—their migrations, living conditions, conflicts, cooperation, ingenuity, achievements, and failings. What can we learn from them?

## FOR FUTURE GENERATIONS

Some lessons of the past have not yet been discovered. By preserving and protecting these landscapes, with their variety of natural and cultural components, we are saving information for future generations.



above: Sunset Crater Volcano, Wupatki and Walnut Canyon National Monuments protect a variety of natural and cultural landscapes.

## Visitor Information

### In Case of Emergency

In case of an emergency, contact a park ranger. If no ranger is available, call 911 or call Park Dispatch at 928-638-7805.

### Dates and Hours of Operation

The Flagstaff Area National Monuments are open every day except December 25, from 9 am to 5 pm. Hours may be extended in summer. Please call or check websites for current information.

### Reaching the Parks

#### Walnut Canyon

Take I-40 exit 204, 7.5 miles (12 km) east of Flagstaff. Drive south 3 miles (5 km) to the Walnut Canyon Visitor Center. Be advised that Walnut Canyon's parking lot has a tight turn-around for towed vehicles. Vehicles longer than 40 feet (12 m) are not recommended.

#### Sunset Crater Volcano

From Flagstaff, take US 89 north for 12 miles (19 km). Turn right at the sign for Sunset Crater Volcano-Wupatki National Monuments. Drive 2 miles (3 km) to the Sunset Crater Visitor Center.

#### Wupatki

From Flagstaff, take US 89 north for 12 miles (19 km). Turn right at the sign for Sunset Crater Volcano-Wupatki National Monuments. Drive 22 miles (35 km) to the Wupatki Visitor Center.

### Entrance Fees

Entrance for adults (16 and older) is \$5.00 per person. Persons under 16 are free. Special fees are charged for commercial tours.

### Passes

The Flagstaff Area National Monuments honor National Park Passes and Golden Eagle, Golden Age, and Golden Access Passports. An annual pass for the Flagstaff Area National Monuments is also available. All passes may be purchased at park entrance stations and visitor centers.

### Weather and Climate

Expect variable weather conditions. Short afternoon thunderstorms are common July through September. Expect high winds during March and April. At Wupatki, summer daytime temperatures can exceed 100 degrees. In winter months, heavy snowfall is not uncommon at Sunset Crater Volcano and Walnut Canyon.

### Pet Policy

Pets are not allowed on trails or in buildings. Pets may be exercised in parking areas and must be leashed at all times. Do not leave pets unattended. Summer temperatures may be fatal to pets left in vehicles.

### Contacting the Parks

Walnut Canyon Visitor Center	<a href="http://www.nps.gov/waca">www.nps.gov/waca</a>	928-526-3367
Sunset Crater Volcano Visitor Center	<a href="http://www.nps.gov/sucr">www.nps.gov/sucr</a>	928-526-0502
Wupatki Visitor Center	<a href="http://www.nps.gov/wupa">www.nps.gov/wupa</a>	928-679-2365
Administrative Headquarters, Flagstaff		928-526-1157

# Meet Jenny Jackson, SCA



SCA intern Jenny Jackson talks with a visiting school group.

A lightning bolt crashes towards the densely crowded ponderosa pine forest, striking a dead 200-year-old pine that has fallen victim to a bark beetle attack. The tree ignites into flames, and soon starts to spread and burn all of the other trees in the forest. By the time firefighters arrive, time is limited to save whatever trees they can, and avoid the massive flames themselves. This may sound like a real scenario, but it is actually the instructions to a fourth grade level game of "Fire Tag". The game is meant to provide one scenario firefighters face during a wildland fire.

Fire games, PowerPoint presentations, interpretive hikes, forest thinning projects, county fairs, Smokey Bear visits, classroom presentations, and summer camps are among the outreach events that Student Conservation Association (SCA) intern Jenny Jackson, participated in during a Summer 2005 internship as a Fire Education Specialist at the Flagstaff Area National Monuments. She provided the parks and the public with wildland fire information and education on what they could do to improve the health of the forest and reduce the risk of catastrophic wild-fires. She also went on the fireline as a firefighter.

This SCA intern position is especially important in the Flagstaff area, where drought, bark beetles, and fire suppression have weakened the health of the surrounding ponderosa pine forests. The threat of catastrophic fire is now higher than ever, and the need for education is now more important than ever.



During Jenny's six-month internship, she contacted over 1,500 people through talks, hikes, and presentations, as well as thousands who were

hit with a flash of fire education at the Coconino Country Fair and the Flagstaff Fourth of July parade. She wrote the "Fire" article that appears in this newspaper, and her involvement with the Junior Foresters Academy was featured on National Public Radio (NPR). The parks have greatly benefited from Jenny's contributions as an intern.

Does an SCA internship sound like work you might love? Jenny's specialty is fire education, but many other conservation-related positions are available. In the Flagstaff Area National Monuments, SCA interns coordinate school groups, give educational talks, monitor natural and cultural resources, lead hikes, staff the visitor centers, and write publications.

Other opportunities are available all over the country - the Student Conservation Association has placed over 40,000 volunteers in national parks, forests, monuments, and historic sites in all 50 states. Interns of all ages contribute over 1.2 million hours of service each year as interpreters, researchers, backcountry patrollers, and educators. Interested? Contact the Student Conservation Association at 603-543-1700 or [www.theSCA.org](http://www.theSCA.org).

## Exploring Northern Arizona

The Flagstaff area contains some of the most fascinating natural and cultural sites in the Southwest. From red rock canyons to Hopi's high mesas, lush green forests to rugged desert, northern Arizona has something for everyone.

**City of Flagstaff Visitor Center** 928-774-9541 800-842 7293 Information on lodging, dining, events and area attractions. *Open daily.*

### Local Organizations

**Coconino National Forest** 928-527-3600 Information on camping, hiking, fishing and other recreational activities. *Open weekdays.*

**Hopi Reservation Hopi Tribal Council** 928-734-2411 Information on touring Hopiland. *Open weekdays.*

**Navajo Nation** 928-871-6436 928-871-7371 Information on visiting the Navajo reservation. *Open weekdays.*

**Museum of Northern Arizona** 928-774-5213 Center for American Indian artifacts and natural history specimens from the Colorado Plateau. *Open daily.*

**The Arboretum at Flagstaff** 928-774-1442 Explore 200 acres of gardens and natural habitats with over 2,500 plant species. *Open daily, spring through fall.*

**Arizona Snowbowl** 928-779-1951 From mid-June thru mid-October, ride the Scenic Skyride to the top of the mountain for a view of alpine tundra and desert. *Open daily.*

**For information about the Flagstaff Area National Monuments, call 928 526-1157.**

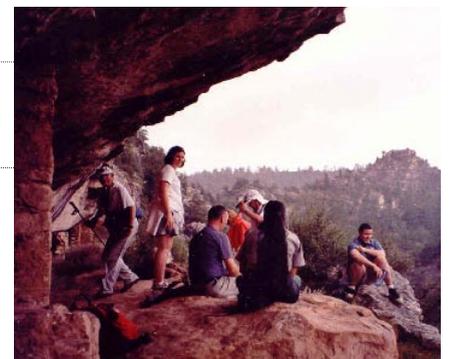


## Exploring the Parks

*above left:* View from Sunset Crater's self-guided Lava Flow Trail.

*above right:* SCA intern Candace Funk and hikers enjoy a Discovery Hike near Wupatki's Citadel Pueblo.

*right:* Visitors on a Ledge Hike pause to look out over Walnut Canyon.



# Calling All Junior Rangers

Hey, kids ... Can you tell a mano from a metate? What does a ponderosa pine tree smell like? What would a story made from petroglyphs be about?

If you're 6 to 12 years old and think you might have an idea, then you'd make a great Junior Ranger. Ask at any of the three parks for a Junior Ranger workbook—it's full of activities that will help you have fun and learn about nature and people from long ago.



When you're done, bring it back to any visitor center. We'll look it over, then swear you in as a Junior Park Ranger and give you an official badge. Collect a badge at each park!

When you get home, become a Webranger. To sign up, go to [www.nps.gov/webrangers](http://www.nps.gov/webrangers).

## Check out a Discovery Pack

Become a naturalist for a day. Discovery Packs contain binoculars, a magnifying lens, field guides, sketching materials and more, to help you explore the monuments. There's also a Field Journal with activities and places to record your observations. Although designed with families in mind, this program can be enjoyed by anyone with a sense of curiosity.

You can borrow a Discovery Pack at any of our three visitor centers, then turn it in at the end of your visit. The Field Journal is yours to keep.



## Teachers!

Make your science curriculum come alive. *Science in Our Parks* is an in-depth, science-based curriculum for 4th through 6th grade educators and their students, focusing on the natural and cultural history of the Colorado Plateau. Through classroom activities and field explorations in the Flagstaff Area National Monuments, students develop an understanding of the scientific process and park management, while gaining a sense of resource stewardship. For more information, contact the Interpretive Specialist at 928-526-1157 x 271.

## Listen! What Was That?

When was the last time you paused at an unfamiliar sound? Birds still sing, crickets chirp, the wind rushes through the trees, but - in this increasingly noisy world - we don't always hear.

Almost everyone associates the national parks with scenery. But there's another aspect to that landscape - it's called a soundscape. Both natural and human-caused sounds (our voices, our machines, our toys, our pets, ...) are part of the total soundscape, but in many places, the human sounds drown out all others. If you live or work near a highway, railroad, airport, or other busy place, you know this daily noise too well. In places like Wupatki, Sunset Crater Volcano, and Walnut Canyon, by contrast, the silence can seem deafening.

You can experience a natural soundscape by listening, in the same way that you view a landscape by seeing. Try it. Take time to:

- Stop. Listen to what's around you.
- Close your eyes. Do you hear other sounds? Do you hear more with your eyes closed?
- Open your eyes and compare the visual landscape with the soundscape. Does the

## Greening Our Parks

At the Flagstaff Area National Monuments, we spend thousands of dollars each year on toilet paper, paper towels, janitorial cleaning products and building and office supplies. Whenever possible, we purchase environmentally preferable products from companies that are doing their part to make a difference. What types of green products are we buying and why?

- **Janitorial cleaning products**

We use cleaning products that are safe, biodegradable and made from natural materials.

- **Recycled plastic lumber**

It is sustainable because it does not contain wood from endangered forests.

- **Biodiesel**

Using biobased fuel for our heavy equipment reduces petroleum consumption. Made from vegetable sources, it is renewable and is free of sulfur.

- **100% recycled (recovered after papermaking process) toilet paper and paper towels**

The products we use are "Green Seal Certified," meaning an independent, non-profit organization has given the products the stamp of approval based on recycled content, how the products are packaged, how they are manufactured (not bleached or dyed), etc.

- **Recycled toner cartridges**

We support a local company that employs people with disabilities. They supply us with a great, sustainable product.

- **Low mercury fluorescent tubes**

By purchasing fluorescent tubes with a very low mercury content, we reduce the amount of hazardous waste ending up in the landfill.

- **Low-flow toilets and urinals**

In an area where water is scarce, water conservation is a high priority.

How can you help keep our parks green? Recycle!

Please use the recycling receptacles at visitor centers and trailheads.

We recycle:

- #1 and #2 plastics
- Aluminum
- Paper, including magazines and newspaper
- Steel/tin cans
- Chipboard (i.e. cracker/cereal boxes)
- Cardboard

shape of the land affect the way sound travels to your ear? What is the closest sound you hear? The most distant?

As part of its mission to "preserve the scenery and the natural and historic objects and the wildlife therein," the National Park Service tries to preserve the symphony of natural sounds that make up the natural soundscape. You can help by walking and talking softly, and by listening carefully.

When you visit a national park, you enter a world of memorable sights. When you listen to a park, you enter a world of inspirational sounds.

To learn more about natural sound, contact:

**Nature Sounds Society**, 510-238-7482

<http://www.naturesounds.org>

**National Park Service Natural Sounds Program**, 970-267-2116

<http://www.nature.nps.gov/naturalsounds/index.htm>

# Living with Wildfire!

Since the beginning of time, nature has dominated this planet. Tsunamis, earthquakes, volcanoes, tornados, hurricanes, and other events continually change the landscape and have, over time, re-sculpted mountains, plains, and entire continents. With 6 billion people now on the earth, such natural events increasingly disrupt vast numbers of human lives as well.

In Arizona, we are experiencing the effects of two natural forces – drought and fire. Each can be devastating, at least from a human perspective, but the two together can bring unimagi-

nable change to everything around us, and do it with frightening speed. In the southwest, fire can rage wild, shaping the land, growing in size, threatening places of importance...and it's not about to end.

In the past few years, the Flagstaff Area National Monuments have experienced several fires. The Gap fire at Sunset Crater Volcano started in June 2005, when lightning struck a large old growth ponderosa pine tree; the fire spread to 54 acres and burned for almost two months. A few years earlier, the Antelope fire raced through

pinus, killed by beetles, add to the risk of wildland fire.

We can't do much about the drought and the extreme fire conditions that accompany it. But we can act to reduce the chance of huge catastrophic fires. Perhaps we can learn from history. What have people done historically to share this land with fire? Did they make the right decisions? If not, how can we do better?

Before early settlers arrived in the southwest, most fires were low-intensity, burning along the forest floor. In the ponderosa pine forests of northern Arizona, fires burned every two to twelve years, clearing the debris off the forest floor and allowing for new life as well as continuation of the old. Pine forests typically had fewer trees per acre, and the trees were large, with yellow bark and strong branches. Open meadows provided wildlife habitat and firebreaks, and allowed sunlight to reach the ground for wildflowers that depend upon it. Forests were strong, healthy, and well adapted to fire.

These patterns changed by the late 1880s; settlers viewed fire as a threat and actively suppressed it whenever they could. When the U.S. Forest Service was established in 1905, fire-fighting was a major concern. Gifford Pinchot, first Chief of the Forest Service, once stated that "today we understand that forest fires are wholly within the control of man..." He was quickly proven wrong – five million acres burned in 1910, mostly in Idaho and Montana, making it one of the most severe and catastrophic years for fires. Aggressive fire suppression continued.

The forests of northern Arizona today present a different landscape than that of 150 years ago. Large fires seem to be more frequent. Forest floors are full of dead pine needles, leaves, and debris. Forests are crowded with thousands of small fragile trees, all fighting for space



A prescribed fire (above) burns through accumulated forest debris at Sunset Crater Volcano National Monument. This is very different from a full-blown forest fire (below).



and light. Such forests are like matches waiting to be lit.

Today, many ecologists consider fire suppression one of the reasons for the unhealthy and crowded forests. Our forests need fire for survival. Ponderosa pines have adapted to withstand the low-burning and frequent fires once common here. Ponderosa bark is very thick to protect the tree from heat, branches grow high off the ground to avoid the flames, and roots are deeply embedded in the ground to prevent the tree from falling after the soils have loosened. Many species of bugs, birds, and reptiles depend on fire for habitat. Some flower seeds need fire to germinate, and some types of pine cones open up and spread their seeds only after the heat of a fire.

Land management agencies, fire departments, and non-profit organizations are working to reintroduce fire as a natural part of our environment, hoping to improve forest health by restoring the historic pattern of frequent light fires. Prescribed burns are used to clear the forest floor of accumulated debris, by purposely igniting fires only under prescribed conditions of relative humidity, moisture,



## Want to Learn More?

Check out these sources for further reading on wildland fire:

**National Interagency Fire Center**  
<http://www.nifc.gov>

**Firewise**  
<http://www.firewise.org>

**Wildland Fire Research  
Rocky Mountain Research  
Station** [http://www.fs.fed.us/rml/main/fire\\_res.html](http://www.fs.fed.us/rml/main/fire_res.html)

**Joint Fire Science Program**  
<http://jfsp.nifc.gov>

**Aldo Leopold Wilderness  
Research Institute**  
<http://leopold.wilderness.net/research/fire>

tall grasses at Wupatki, burning 1,400 acres.

So, why is this happening? Much of the southwest is in the grip of a 10-year drought, with no end in sight. With too little rain or snowfall, trees and other plants dry out and sometimes die. At times, the moisture content of standing trees has measured less than that of lumber stacked at the local hardware store. Trees that dry can ignite quickly, and the resulting fires burn hotter and faster than the normal ground fires. Also, trees stressed by drought are highly susceptible to bark beetles. These tiny insects are always present in small numbers, but can multiply amazingly in continued dry years. Entire hillsides of ponderosa

## Wildfire continued

wind, and temperature. Forest thinning projects remove small diameter trees to allow larger trees enough space and light to grow. These techniques, and others, recognize the importance of fire in our ecosystem. But the results are not guaranteed; these projects are changing the forest into what we think it should be. Only time will tell how well this works.

The Flagstaff Area National Monuments are preparing a Fire Management Plan, which will provide guidance on fire ecology and apply appropriate science to improve the health of existing forests. The plan also recognizes the need for education and continuing communication among professional fire managers and the public.

Fire will always be present; it is impossible to ignore. It is a necessary component of the ecosystem and crucial for the health of the forest. But there will always be questions, concerns, and debates over fire management. What is the most successful way to manage fire to do what is best for the ecosystem and for the public? Learning how to live with fire is our challenge for the future.

by Jenny Jackson, SCA



Ponderosa pines, killed by bark beetles at Walnut Canyon, increase the risk of wildland fire.

# New Exhibits for Wupatki

Come to Wupatki and explore the new visitor center exhibits. What was life like? How do we know? Learn about this place from the varied perspectives of archeologists and American Indian groups who trace their ancestry to Wupatki. Would you have prospered as a farmer 800 years ago? Play the Corn Game and find out. The new exhibits feature artifact displays, a model pueblo room, computer simulations, and more.

The new exhibits, which replaced those installed in the 1960s, were completed in August 2005. Design and fabrication were accomplished through a partnership with the Museum of Northern Arizona in Flagstaff, and funded by locally-collected park entrance fees. The Hopi, Navajo, and other associated tribes, as well as other partners, participated in the extensive planning required for this project.

Wupatki is the second of our visitor centers to undergo such a transformation. New exhibits opened at the Sunset Crater Volcano Visitor Center in June 2004. There, the exhibits tell the story of Arizona's most recent volcanic eruption and its effects on the land and its inhabitants. You can create your own



Park staff and visitors explore the new Wupatki Visitor Center exhibits during the grand opening, August 25, 2005.

earthquake at a jump station, take a virtual tour of the volcano's summit, and examine a replica lava flow.

Located 20 miles apart, these two visitor centers interpret two different but closely related aspects of this land and its people. Be sure to visit both.



New exhibits were installed in 2004 at the Sunset Crater Volcano Visitor Center.

## How Do We Know? The Science behind Interpretation

When did Sunset Crater erupt? For how long? This knowledge is crucial to understanding both the geology and archeology of northern Arizona. For many years, we thought we had the answer: that the eruption began during the winter of 1064-65, and continued for 200 years.

The information came from an exciting discovery almost 50 years ago. If you've ever counted the rings in a tree stump to learn its age, you know part of the story. Scientists discovered that patterns of different width growth rings can be matched from one tree to another, extending back farther and farther in time. In 1958 the new tree-ring dating method was applied



Tree-ring specialist Dr. David Street is investigating the Sunset Crater eruption.

for the first time to a volcano, using timbers taken from nearby Wupatki Pueblo to establish the 1064 date for Sunset Crater.

But research methods and technology have improved, and scientists are now challenging those earlier

conclusions. New developments in many fields, from tree-ring analysis to chemistry, volcanology, and archeology, suggest new answers to our questions. Most experts now agree that the eruption occurred sometime between 1040 and 1100 and lasted only a few months or years. This new information is being incorporated into park exhibits and publications.

Other questions abound – How are city lights affecting the dark night skies at Wupatki? What bird species live in the Walnut Canyon forests? How are high desert grasslands and other landscapes changing over time? This year, 32 research projects are

*"Science" continued on page 12*

# Stay Safe

For your own safety, you are responsible for knowing and obeying park rules and regulations while visiting the Flagstaff Area National Monuments. If you have any questions, please contact a park ranger. Here are a few things to remember:

## Observe posted speed limits

Park roads are not designed for speed. Drive slowly, enjoy the scenery and watch for animals on the road. Be especially careful at dawn and dusk, when animals are most active.

## Drive Safely

Buckle up. Seat belts are required by law.

Vehicles and bicycles must remain on designated public roadways. Always use marked parking areas and *never* stop in the roadway.

## Hunting and the possession of firearms are prohibited

## Do not approach or feed wildlife

Within the parks, animals as varied as javelinas, pronghorn antelope, collared lizards and mountain lions make their homes. Park wildlife is protected by federal law. Remember, this is *wildlife*—keep a safe distance.

## Avoid contact

The white-footed deer mouse is a carrier of hantavirus and prairie dogs can carry plague. Use caution and common sense around skunks, bats and other known carriers of rabies.

## Hydrate

Heat kills. In summer months, prevent dehydration by drinking lots of water. Eat salty snacks. If you will be doing strenuous hiking, take one gallon of water per person, per day.

## Avoid lightning storms

Lightning storms are common to northern Arizona in summer months. Avoid danger by seeking shelter at the first indication of lightning. Avoid trees and open areas.

## Be careful with fire

Ask about current fire conditions. Protect yourself and your parks by obeying fire restrictions and closures. Discard cigarettes only in ashtrays - never along roads or trails.



## Traveling in Mountain Lion Country

Mountain lions live in these parks. Sightings are rare—an **attack is an extremely unlikely event**. There is far greater risk, in fact, of being struck by lightning. However, lions do frequent Walnut Canyon and the potential exists for a hazardous encounter. To avoid danger, it is important for you to know how to behave in mountain lion country. The following advice will allow you to more safely share these parks with a truly spectacular animal.

### These actions have resulted in mountain lion attacks:

-  People jogging or hiking alone. It is advisable to travel in groups.
-  Children running or walking unattended by parents. Keep children close and within sight at all times.

### What to do if you see a mountain lion:

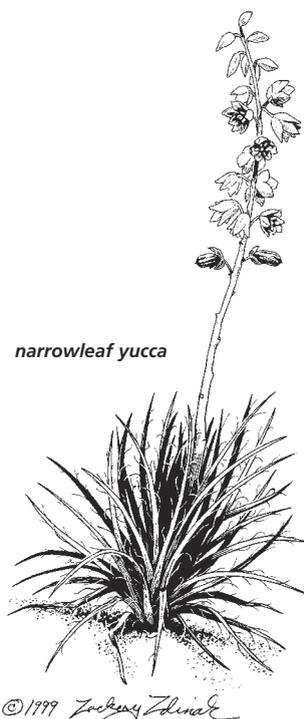
-  Do not run. Do not approach it. Do not crouch down.
-  Stop! Raise your arms and back away slowly, facing the lion. Leave the lion an escape route.
-  Pick up small children. Their size and behavior make them vulnerable.
-  If a lion is aggressive, wave your hands slowly, speak firmly or shout.
-  If attacked, remain standing and fight back!

## Park News In Brief

### Environmental Management System

The Flagstaff Area National Monuments have developed an Environmental Policy to demonstrate commitment to environmentally and professionally sound practices in daily activities. Each employee is responsible for evaluating and making informed choices in purchasing products and services, using and disposing of products and materials, interacting with natural and cultural resources, and interacting with coworkers and the public.

We are proud that Sunset Crater Volcano, Walnut Canyon, and Wupatki National Monuments are the 3rd, 4th and 5th National Park Service units to have an Environmental Management System registered to the International Standard, ISO 14001:2004.



narrowleaf yucca

### Kodak Donates Camera Equipment

In 2005 the Flagstaff Area National Monuments received a donation of digital imaging equipment from Eastman Kodak Company, a Proud Partner of America's National Parks, through a grant from the National Park Foundation.

Some of the images in this and other park publications were created through the use of this donated equipment. We thank Kodak and the National Park Foundation for their generous support.

### Happy Birthday, Antiquities Act

The Antiquities Act is 100 years old! Signed by President Theodore Roosevelt on June 8, 1906, this was the first law granting legal protection to cultural and natural resources on public lands. It also authorized the president to designate national monuments like Wupatki, Sunset Crater Volcano, and Walnut Canyon.

With few exceptions, every president since 1906 has used this law to preserve significant resources for all Americans. Now, 100 years later, we can reflect upon these accomplishments and consider the preservation challenges of the 21st century. Many national monuments will be celebrating their centennials in upcoming years. For details on special events, go to [www.cr.nps.gov/archeology/sites/antiquities](http://www.cr.nps.gov/archeology/sites/antiquities).

# Western National Parks Association

## The Story of WNPA

Western National Parks Association (formerly Southwest Parks and Monuments Association) was founded in 1938 to aid and promote the educational and scientific activities of the National Park Service. As a nonprofit organization authorized by Congress, WNPA operates visitor center bookstores, produces publications, and supports educational programs at more than 63 parks in 11 western states.

## Bookstore Sales

Bookstore sales are WNPA's primary source of income and support for the parks' interpretive programs. The following publications, available from WNPA, are recommended for making the most of your visit to the Flagstaff Area National Monuments.

For additional choices, visit the visitor center bookstores, or browse online at [www.wnpa.org](http://www.wnpa.org).



## Introducing the Parks

### Official Map and Guides

Specify Wupatki/Sunset Crater Volcano or Walnut Canyon Park maps, safety, regulations, general orientation and introduction to the natural and cultural history of the parks. **\$.25 each.**

### Sunset Crater Volcano National Monument

*Rose Houk*

A look at the youngest of over 600 volcanoes found in the San Francisco Volcanic Field. 16 pages. **\$3.95**

### Wupatki National Monument

*Susan Lamb*

An overview of the natural and human history of Wupatki, from past to present. 16 pages. **\$3.95**

### Walnut Canyon

*Scott Thybony*

Guide to the cultural and natural history of Walnut Canyon National Monument. 16 pages. **\$3.95**

Deutsch translation: **\$4.95**

### Guide to Sunset Crater and Wupatki

*Scott Thybony*

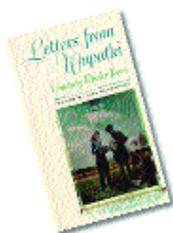
An excellent road guide to the natural and cultural features of both national monuments. 48 pages. **\$5.95**

## The Parks In Depth

### Wupatki and Walnut Canyon: New Perspectives on History, Prehistory, and Rock Art

*David Grant Noble*

Research and analysis have provided new insights, presented here in a concise overview. 40 pages. **\$8.95**



### Letters from Wupatki

*Courtney Reeder Jones*

A compilation of letters written to friends and family by the wife of Park Service caretaker Davy Jones during the 1930s. A wonderful glimpse into life at Wupatki in the days before 240,000 visitors a year. 151 pages. **\$16.95**

## Cultures of the Southwest

### Those Who Came Before: Southwestern Archeology in the National Park System

*Robert and Florence Lister*

An excellent and comprehensive overview of southwestern archeological sites in the National Park System. 184 pages. **\$16.95**

### Prehistoric Cultures of the Southwest Series

*Rose Houk*

Each booklet in this five-part series provides an introduction to the evolution, achievements, and lasting legacy of a distinct ancient culture. Please specify *Anasazi, Hohokam, Mogollon, Salado, or Sinagua*. 16 pages. **\$3.95 each.**

## Geology

### Volcanoes of Northern Arizona

*Wendell Duffield*

An easy-to-understand guide to northern Arizona volcanoes with beautiful graphics and color aerial photographs. Includes several self-guided road tours. 68 pages. **\$9.95**

### Highlights of Northern Arizona Geology

*Arizona Geological Survey*

A compilation of interesting articles on geologic features, side canyons of the Colorado River, petrified wood, and an aerial tour. 34 pages. **\$7.95**

### A Guide to the Geology of the Flagstaff Area

*John V. Bezy*

Descriptions and directions to fascinating geologic features along NPS and US Forest Service roads and trails. 56 pages. **\$7.95**

### Roadside Geology: Wupatki and Sunset Crater Volcano National Monuments

*Sarah L. Hanson*

A geologic road guide for the 34-mile scenic loop road connecting the two national monuments. 32 Pages. **\$6.95**

### Roadside Geology of Arizona

*Halka Chronic*

Explains the spectacular geology of Arizona as seen from specific points along highways throughout the state. 321 pages. **\$18.00**

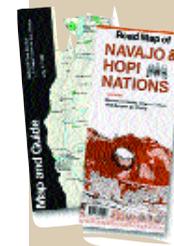
## Maps

### Guide to Indian Country Map

Covers the Four Corners area outlining Indian reservations, national parks and monuments, and geologic features. **\$4.95**

### Recreational Map of Arizona

Detailed travel map with more than 400 recreational sites and 500 points of interest listed. **\$3.95**



### Road Map of Navajo and Hopi Nations

Includes detailed maps of Monument Valley, Chaco Culture, and Canyon de Chelly. **\$3.95**

## Hiking and Travel Guides

### The Guide to National Parks of the Southwest

*Nicki Leach*

Authoritative interpretive guide to 52 National Park Service sites in Arizona, Utah, Colorado, New Mexico, and Texas. Color. 80 pages. **\$9.95**

### The Back Roads

This Arizona Highways book outlines 20 exciting back road tours for the whole family. 137 pages. **\$12.95**

### Flagstaff Hikes

*Richard and Sherry Mangum*

146 day hikes around Flagstaff, Arizona. 288 pages. **\$16.95**



## Placing Your Order

### By Phone

We encourage you to order by phone to get the publications best suited to your needs. To place an order, please call 928-526-1157 x 226.

### By Mail

Add up the total amount of your order plus shipping cost (see table at right). Include a check payable to WNPA, or credit card number and expiration date. Visa and Mastercard accepted. Send orders to: WNPA, 6400 N. Highway 89, Flagstaff, AZ 86004. Prices and availability subject to change.

### Shipping Costs

Item Total	Shipping Cost
Up to \$4	\$2.00
\$4.01 - \$15	\$4.00
\$15.01 - \$25	\$5.00
\$25.01 - \$50	\$6.00
\$50.01 - \$100	\$6.50
Over \$100	Actual postage + \$1.00

International shipments, add \$1.00.



**National Park Service**  
**U.S. Department of the Interior**

**Flagstaff Area National Monuments**  
 6400 N. Highway 89  
 Flagstaff, AZ 86004



**Western National Parks Association**  
 12880 N. Vistoso Village Dr.  
 Tucson, AZ 85737

**EXPERIENCE YOUR AMERICA**

## Partnership

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Forest campgrounds (Bonito, Pine Grove, and Dairy Springs). They give interpretive talks and lead hikes at Wupatki, Sunset Crater Volcano, and Walnut Canyon National Monuments. And they venture into town to present special programs for the City of Flagstaff Visitor Center, summer youth camps, and senior citizen groups.

For the rangers, this variety of locations provides a unique work experience. It's not unusual atop the ski lift to watch the temperature drop to freezing, as summer monsoon storms blow in, bringing hail, snow, and lightning. The next day, however, may take those same rangers to Wupatki National Monument, 7,000 feet lower in elevation and 70 degrees warmer.

What do visitors think when they see National Park Service rangers working in the national forests? Or the Forest Service uniform at an NPS visitor center? They recognize this as a good idea, and wonder why we haven't been doing it all along.

That's what some innovative agency employees thought in 1990, when they came up with the idea. The Interpretive Partnership was created by Kim Watson, then Chief Ranger of the Flagstaff Area National Monuments, and John Nelson, Recreation and Land Staff Officer of the Coconino National Forest Mormon Lake Ranger District. Two seasonal rangers were hired the first year.

Although federal interagency coordination is not new, the Flagstaff idea was different because it provided interpretation of the natural and cultural resources of both agencies. There was some trepidation at first, but it soon became obvious that similar resource issues, and the need for better public understanding, were bigger than either agency. Watson believes that the program has also helped the two organizations to better understand each other. "It was simply good business," he says, "and one of the greatest joys of my career to be involved with

the creation of this program, ... an example of how to do the most good with limited resources."

The partnership has endured, depending each year upon two to four seasonal employees and an increasing cadre of volunteers, to help visitors understand the many stories of northern Arizona.

*by John Westerlund, Park Ranger, NPS/USFS Interpretive Partnership*

## Science

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underway in the Flagstaff Area National Monuments, seeking answers to these and other questions. Some findings may lead to new questions and additional research. All will add to our understanding and appreciation of these parks and their place in the world around us.



Visitors enjoy a Partnership-led hike on the Lava Flow Trail.