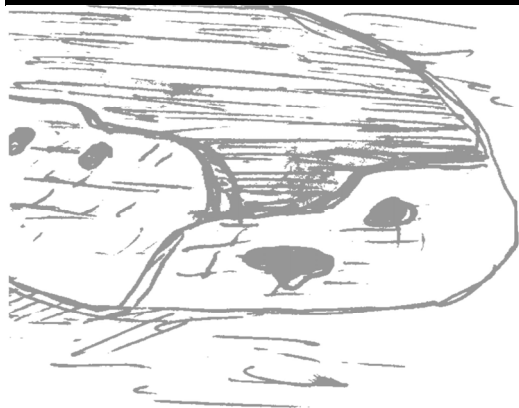


Gila Cliff Dwellings

National Park Service
U.S. Department of the Interior

National Monument
Silver City, New Mexico



Discover Cliff Dweller Canyon



The Adventure Continues
Explore, Learn, Protect:

Senior Ranger

- Explore the resources of today
 - Learn about the past
 - Protect both



On federal lands all artifacts (objects over 50 years old) are protected by the **Antiquities Act** of 1906. Leave all artifacts exactly where you find them.

Welcome to Gila Cliff Dwellings National Monument, surrounded by the Gila National Forest and the first designated wilderness area. These public lands are managed by both the National Park Service and the United States Forest Service, each with its own unique mission.



National Park Service (NPS) mission: "To conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Organic Act 1916

United States Forest Service (USFS) mission:

" to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations."

United States Forest Service



Wilderness definition:

"... an area where the earth and its community of life are untrammelled by man, ... and which generally appears to have been affected primarily by the forces of nature, with the impact of man's work substantially unnoticeable."

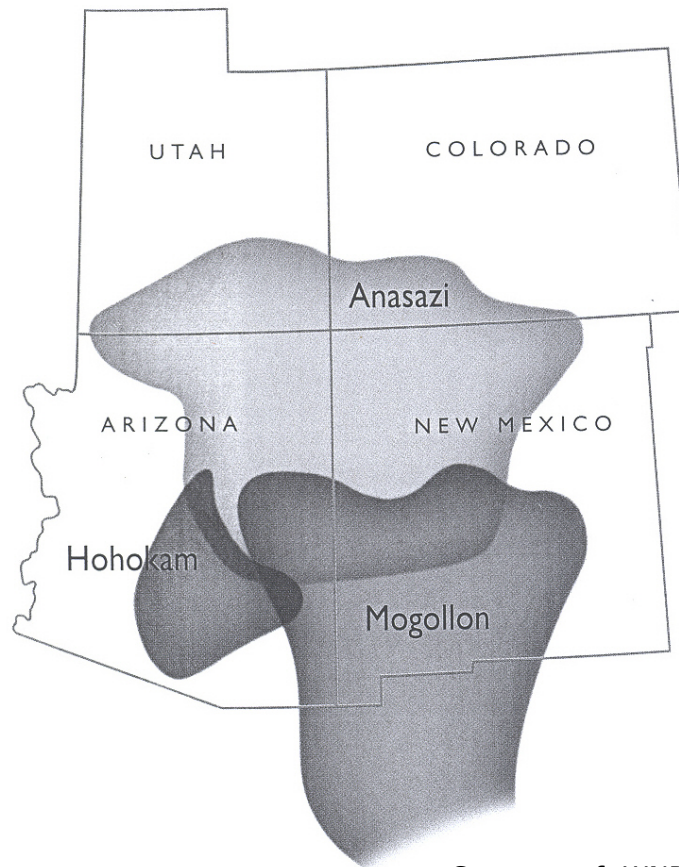
The Wilderness Act of 1964

Fast Facts:

- ⇒ Gila Cliff Dwelling National Monument, established in 1907, contains 533 acres.
- ⇒ The Gila National Forest, established in 1899, contains 3.3 million acres.
- ⇒ The Gila Wilderness, established in 1924, contains 558,065 acres.

Gila Cliff Dwellings National Monument

is the **only** unit within the National Park Service dedicated to the protection and interpretation of the Mogollon culture.



Courtesy of WNPA

People have lived in this region for over 12,000 years. Small groups of hunters and gatherers banded together to share work and ideas. After the introduction of corn, (around 200 B.C.) larger groups formed and became distinct cultures with their own language, religion, science, technology and art.

Today, we call the three largest cultures of the prehistoric Southwest the Anasazi, (Ancestral Puebloan), the Hohokam and the Mogollon.

Use the activities in this book as a guide along the one mile trail through the Gila Cliff Dwellings National Monument. Travel into the past, through Cliff Dweller Canyon, and discover how observing the natural and cultural resources of today allow us to reflect upon the life of the Mogollon over 700 years ago.

Before leaving the Monument, bring your book to the Visitor Center to check your answers.

Complete at least five of the activities in this book and you will have earned your Senior Ranger award.

To preserve and protect the Gila Cliff Dwellings, and for your own safety, please remember to stay on the trail.



Fast Facts:

- ⇒ Gila is pronounced Hee-la
- ⇒ Mogollon is pronounced Mo-Go-Yone or Muggy-own
- ⇒ Don Juan Ignacio Flores Mogollón, was the Spanish Governor of what is now New Mexico from 1712-1715.
- ⇒ The Mogollon were an active part of the southwest from about 200 A.D. until 1400 A.D.

“It’s a way to let our minds sail through time while our eyes feast on the simple yet complicated dwellings of the past.”

Bella Bjornstad, Age 10, from Gila Hot Springs, NM, answers the question “What makes Gila Cliff Dwellings a special place?” in the 2006 Junior Ranger Book.

Before stepping onto the trail, discover what is really under your feet because there would be no cliff dwellings without the cliffs. Our story begins over 28 million years ago when this area was a hotbed of volcanic activity. Details preserved in the colors, textures, minerals and erosion patterns of the surrounding rocks are clues to the past. From the trailhead parking area, three rock layers are visible.

NPS Campbell Collection



Gila Conglomerate



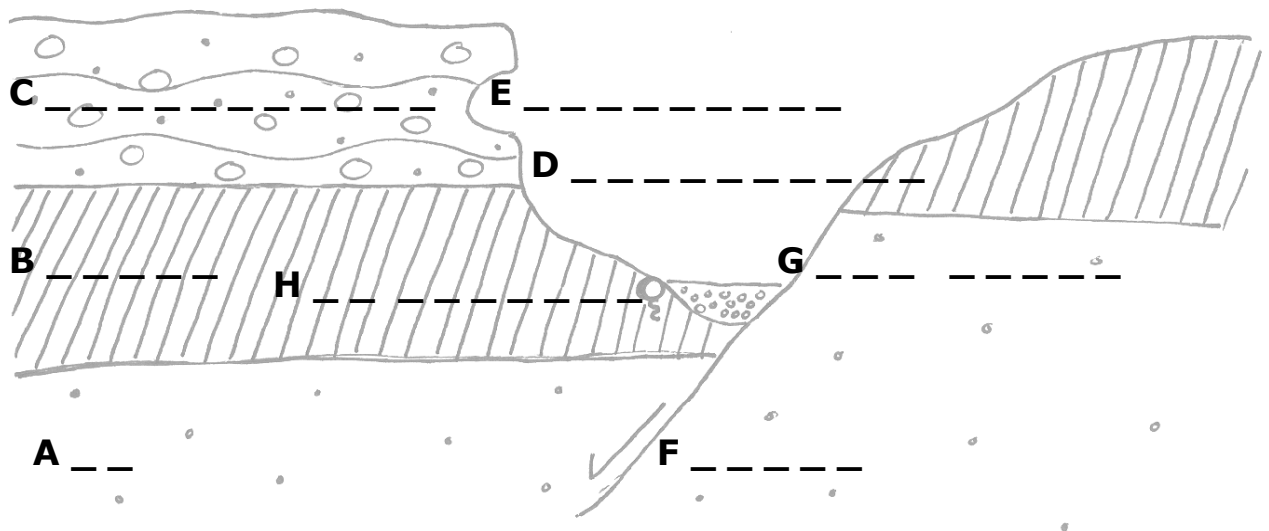
Bearwallow Mountain Andesite

Bloodgood Canyon Tuff

NPS Photo

Fast Facts:

- ⇒ Lava is molten rock that flows from a volcano and cools quickly.
- ⇒ Bloodgood Canyon Tuff is ash and pumice blown out of an ancient volcano that heat-welded into rock called Rhyolite.
- ⇒ Andesite is the lighter volcanic rock found in the lava layer above the Bloodgood Canyon Tuff.



This chronological cartoon cross section illustrates the basic geology of the area. Unscramble the letters below to label the items above and discover how the complex geologic history of the Gila Cliff Dwellings area can be as easy as A-B-C!

1. Eruptions of **A** 28 million years ago (mya) resulted in a light grey rock called Bloodgood Canyon Tuff. Exposed cliffs in the parking area contain a mineral called moonstone that sparkle in the sun. The center of the volcano collapsed, forming a caldera 10 miles across and hundreds of feet deep. **(HAS)**
2. Lava flows that originated near Bear Wallow Mountain 25 mya cooled into the dark layer of **B** (technically Andesite) now visible at the mouth of Cliff Dweller Canyon. **(TALBAS)**
3. A conglomeration of sediments cemented together about 10 mva to make the sedimentary rock called Gila C in which the dwellings are found. **(ECTOANGRELMO)**
4. **D** of rivers and streams expose cliffs and create canyons. **(NGITCUTWODN)**
5. A form of erosion called **E** helps alcoves grow bigger as pieces of conglomerate spill off the rock walls. **(FLOONTIAXE)**
6. **F** cause some rock layers to shift relative to others. **(STUFAL)**
7. The **G** continues to erode and transport sediment. Downcutting, or erosion, of volcanic rock is such a slow process that Cliff Dweller Creek is probably less than an inch, and no more than 2 feet deeper, than when the Mogollon people lived here. **(AILG VRIER)**
8. Heated groundwater sometimes travels back up faults or other cracks to the surface as **H**. **(THO GRIPSSN)**



Water shapes and sustains the landscape. The Gila River and Cliff Dweller Creek carved canyons and caves. They also enrich the area with nutrients creating niches for plants, animals, and people. Diverse habitats within Cliff Dweller Canyon include riparian areas, piñon and juniper forests, dry slopes, and ponderosa pine forests. Everything must adapt to the natural cycles of drought and flood to survive along the banks of a river with a fluctuating flow.



Fast Facts:

- ⇒ New Mexico's Grant and Catron counties (home of the Gila Cliff Dwellings) contain 2832 square miles of the Gila River watershed.
- ⇒ Measured from Bead Springs in the Mogollon Mountains to near Yuma, Arizona, the Gila River is approximately 649 miles long.



Look for high water marks along the river such as debris caught in trees or piled on the bank as evidence of flash floods. At times the river can swell enough to carry boulders. At other times, it can shrink and flow underground.

Stop on the bridge over the West Fork of the Gila River and watch the flow of the water. River flow is often measured in cubic feet per second (cfs). If a beach ball is approximately one cubic foot, how many can you picture floating under your feet per second?



Flows for the Gila River are measured at a gauging station about fifty miles downstream. By then the West Fork is joined by several other streams to produce a larger flow.

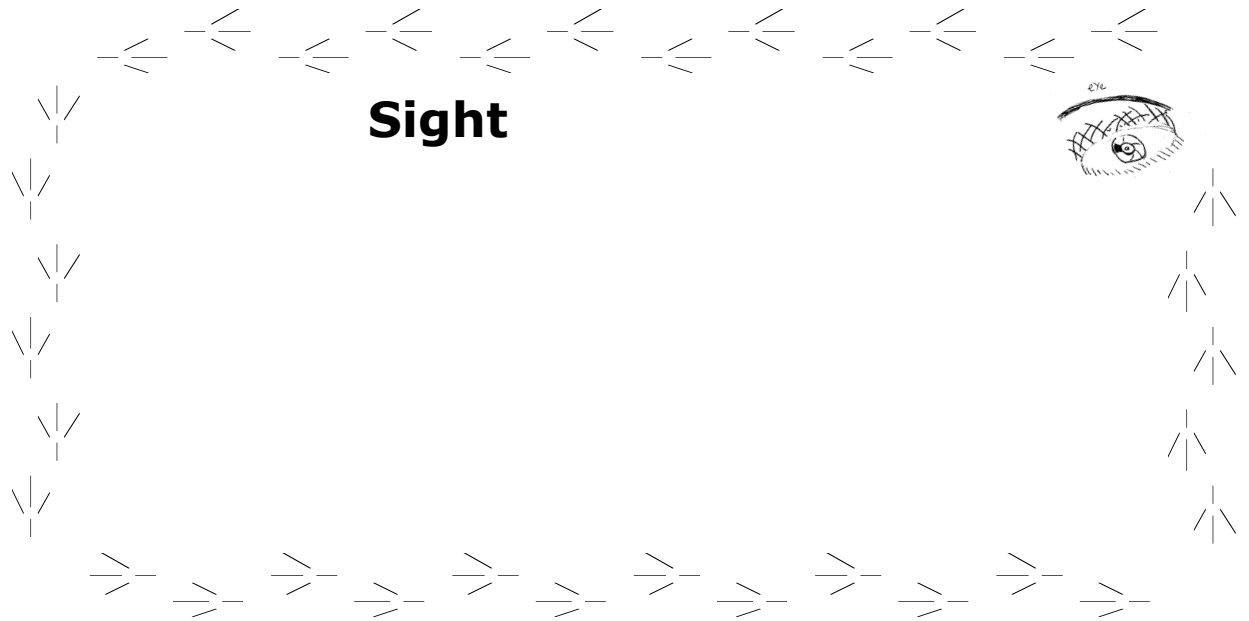
Photos on these pages were taken from the Visitor Center area.

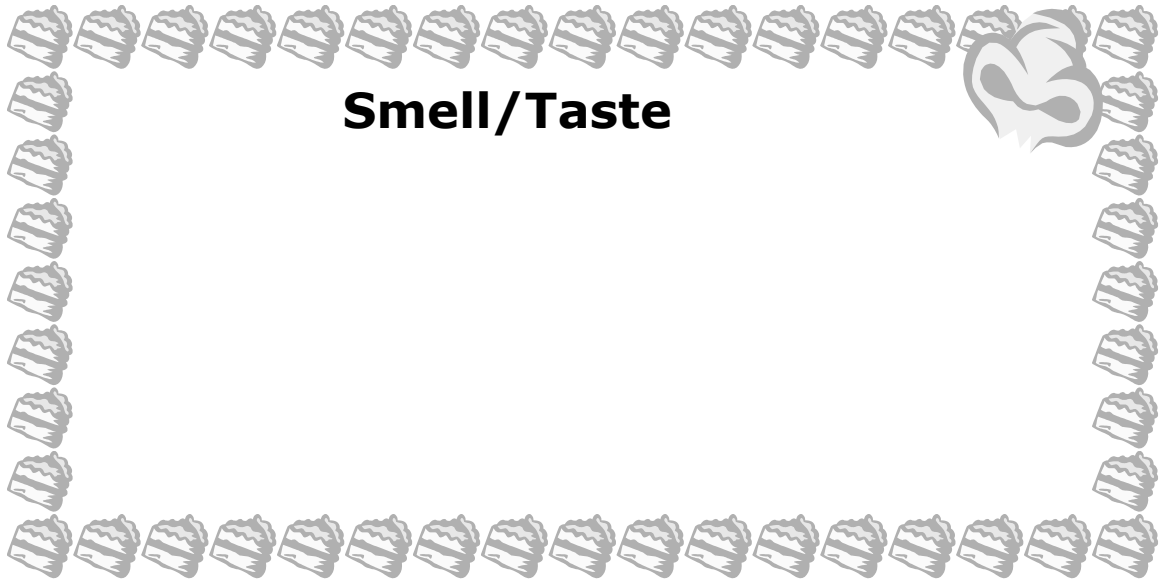
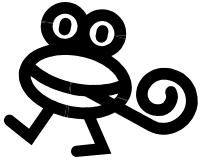


Gila River average recorded flow— 2006

The river was the highway that hunters and gatherers followed for their survival. Exploring the canyons around the river led these nomadic people to new places to hunt, gather and find shelter.

Find a spot in the Canyon (the photo viewpoint is a good place to pause). Sit quietly and immerse yourself in this time and place. Rock, water, plants and animals in this canyon create an outstanding diversity of colors, textures, sights, sounds and smells. Translate your sensory experiences into drawings, poems or words.





Smell/Taste

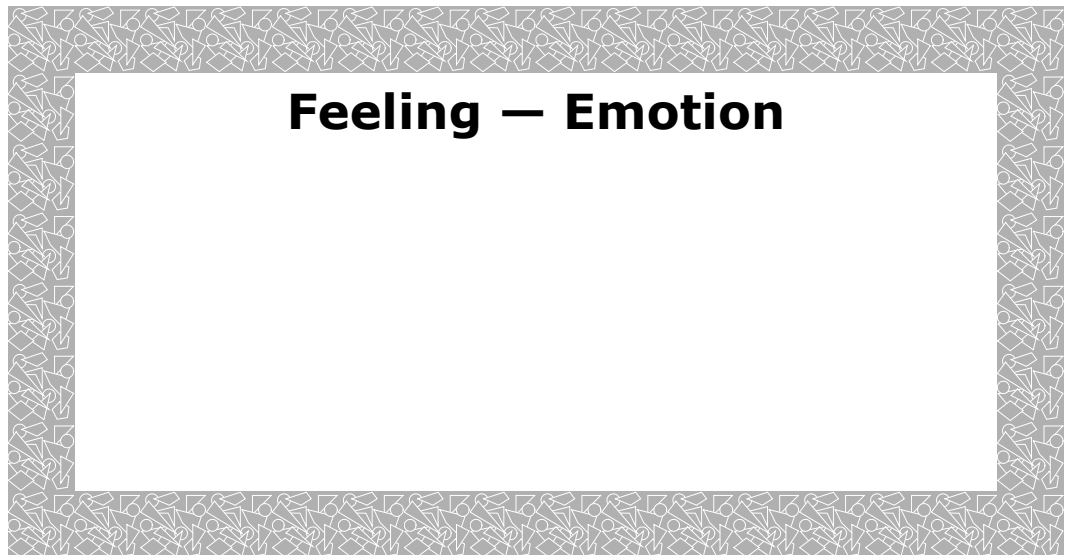


Feeling—Touch

**Beware of
poison ivy.
Remember
“Leaves of
three, let it be!”**



Feeling — Emotion



Observation is critical for survival. Imagine you woke up this morning as a hunter/gatherer living in Cliff Dweller Canyon during prehistoric times. Would you be able to identify the resources around you that will provide food, medicine, clothing and tools? By observation of the resources today we can better understand the past.

Scavenger Hunt

As you hike the trail, check off what you find.

Yucca may be spiky, but it is not a cactus. It is related to lilies.

Leaves — Sandals, mats, baskets, paint brushes

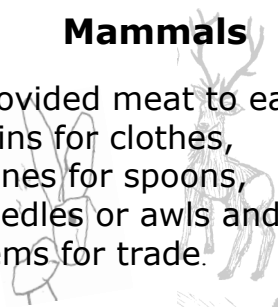


Reptile



Mammals

provided meat to eat, skins for clothes, bones for spoons, needles or awls and items for trade.



Nuts or Seeds

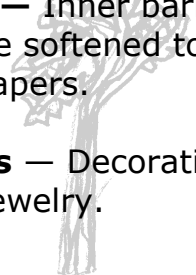


Draw something you don't recognize here in enough detail to identify it later.

Junipers

Bark — Inner bark can be softened to use for diapers.

Seeds — Decoration and jewelry.

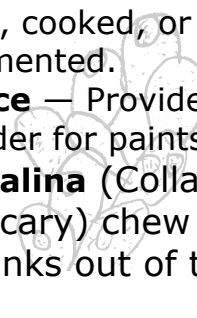


Prickly Pear

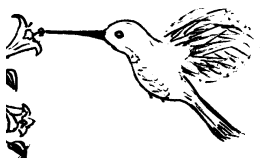
Cactus — eaten raw, cooked, or fermented.

Juice — Provides binder for paints

Javalina (Collard Peccary) chew large chunks out of them.



Bird



Feathers — ceremonial items

Bones — Tools

Track or Scat










Fast Facts

- ⇒ Bears, mountain lions and wolves are the area's largest predators. The last grizzly bear recorded in the area was in the 1930's.
- ⇒ There are 107 bird species, 387 plant species (many of which are edible, herbal or medicinal), 37 mammal species, and 21 amphibian/reptile species at Gila Cliff Dwellings National Monument.

LET'S DO LUNCH at Cliff Dweller Café

By watching what the animals eat you may get a better idea of what is edible for humans. Based on what you know of the following inhabitants of Cliff Dweller Canyon, place the number of the menu selection in the plate next to the correct animal to place an order.

Mountain Lion		1. Spider soup flavored with dandelion leaves and primrose, sprinkled with crunchy ants.
Javalina		2. Road kill special: snake pancake, flattened rabbit, and fragrant squished skunk. (Available as take out.)
Mosquito		3. A smorgasbord of deer, bite-sized chunks of elk and rabbit, accompanied by rare leg of Mogollon in a light mushroom sauce (in season).
Crevice Spiny Lizard		4. Sun baked lizard, gopher and tender young mice stuffed in grape leaves.
Turkey Vulture		5. Salad: young prickly pear cactus pads, moth larvae, boiled bird eggs. Topped with chef's special walnut and currant dressing.
Blacktail Rattlesnake		6. Crushed acorns, black walnuts, piñon nuts, sunflower seeds and stewed currants drizzled over pinecone pate.
Rock Squirrel		7. A pint of well seasoned tourist blood, Southwestern vintage.

For a thousand years, the Mogollon culture expanded as people settled in the area, first in pit house structures, then in surface pueblos. Corn gave roots to their culture and they settled for longer periods of time. The caves in Cliff Dweller Canyon contain evidence of previous occupation. However, it wasn't until the Tularosa Mogollon migrated from what is now the Reserve, NM area during the thirteenth century that the walls we see today were built.

In archeology, architecture can be considered an artifact that contains clues about the people who made it. It tells us when a group became large enough to need a separation of space. Walls can be considered a symbol of the complexity of community and social structure.

Mesa Verde National Park

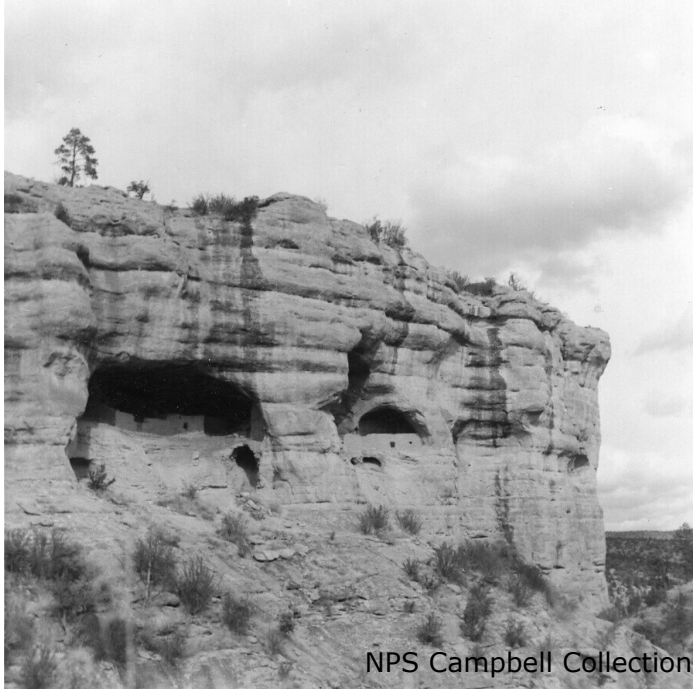
Southwestern Colorado

The Anazazi (Ancestral Puebloans) at Cliff Palace shaped each sandstone block into brick shapes which required less mortar between the blocks. Within the mortar mixture of local soil, water and ash are tiny pieces of stone called "chinking."

Casa Grande Ruins National Monument

Central Arizona

The Hohokam made the multi-storied adobe walls of the great house from caliche; a naturally occurring soil consisting of clay, sand, and calcium found in the deserts of the southwest.



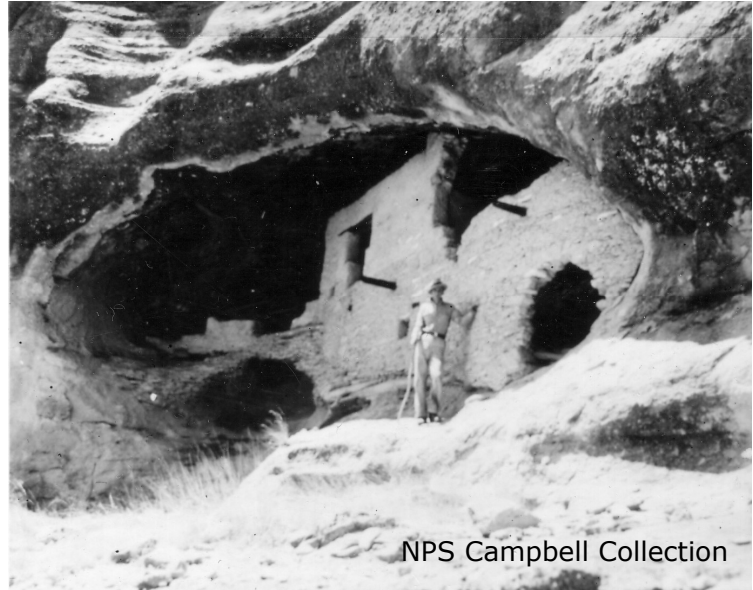
Gila Cliff Dwellings National Monument

reflects the lifestyle of the Mogollon people in the late 1200's. Archeologists found forty two rooms within the first five caves. The Mogollon formed their walls using the irregularly shaped chunks of Gila Conglomerate found within the caves. To keep the walls together, a lot of mortar was required. In some places you can still see the handprints of the builders.

It has been 700 years since these walls were built. Stabilization projects and a designated trail protect the dwelling walls from the impact of increased visitation.



How does Cave 2 today compare with this photo taken in 1941?



Be an archeologist! Explore the caves with an archeologist's eye. The T-shaped door found throughout the Southwest is most commonly associated with Ancestral Puebloan buildings.

As an archeologist would you conclude that

- A. Anazazi (Ancestral Puebloan) lived with the Mogollon.
- B. T-shaped doorways served a common practical or symbolic purpose so were used by all the cultures of the Southwest
- C. Mogollon learned how to build T-shaped doorways when they traveled to trade.
- D. All of the above are possible.



Using your imagination bring the site back to life by putting the props back on the empty stage of the dwellings. Artifacts found in Gila Cliff Dwellings include:

Cordage and Cloth

Twine
Wool and Cotton Yarn
Twisted Fiber
Knotted Cord
Netting
Sinew Cord
Hair Cord
Cotton Cloth
Agave Needle and Thread



Plants

Corn cobs
Grasses
Datura
Legumes
Walnuts
Seeds

Bone

Awls
Scrapers
Flakers
Smoothing tools
Whistle/flute
Tubes

Bones found consisted of:
46% mule deer,
39% bison
10% elk, white-tailed
deer and pronghorn
antelope combined.

Decorative Stone and Shell

Obsidian Beads
Turquoise Pendant
Malachite Bracelets

Stone

Matates and Manos
Abraders
Pestle
Axes
Drill
Sawtooth tools
Projectile points

Not everything desired for daily living was found in Cliff Dweller Canyon. Many items had to be traded for. This short list of artifacts found in the caves can give us an idea of how far the cliff dwellers traveled to trade.

Seashells — Turquoise — Bison bones — Macaw feathers

POCKET ARCHEOLOGY

Empty out your pockets, purse or backpack. What do the objects inside say about you and your life? How is this like archeology?

Fibers and Feathers

Carrying Net
Needle
Baskets
Sandals
Matting
Macaw Feathers

Wood, Reed and Gourd

Atlatl
Darts
Arrows
Digging Sticks
Trowel
Fire Drill
Pot rests
Gourd Containers
Pahos (Prayer Sticks)
Painted Sticks

Pottery Types

Reserve Smudge Alma Plain
Reserve Indented Corrugated
San Francisco Red
Tularosa Filet Rim
Tularosa Black and White
Mimbres Classic



Fast Fact:

- ⇒ Many artifacts were looted from the caves which would have told us much, much more about the Mogollon culture.
- ⇒ Occasionally, artifacts such as corncobs and pottery sherds will come to the surface, especially if the resident squirrel starts digging! A shell bracelet was found in 2003. A yucca sandal came to the surface in 2005. If you find an artifact, leave it in place and tell a ranger.

Take only photographs, leave only footprints!

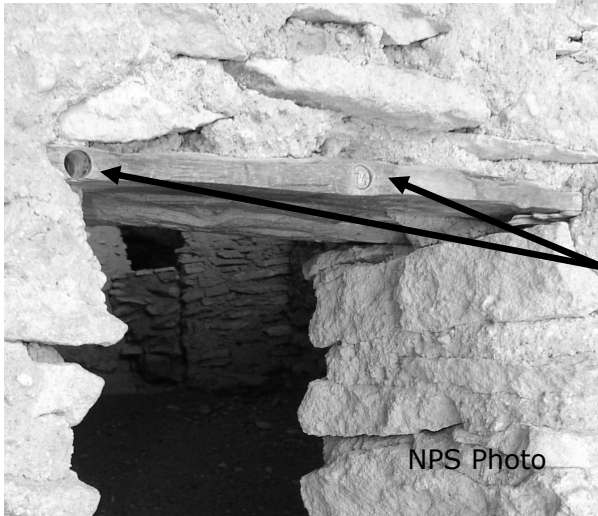
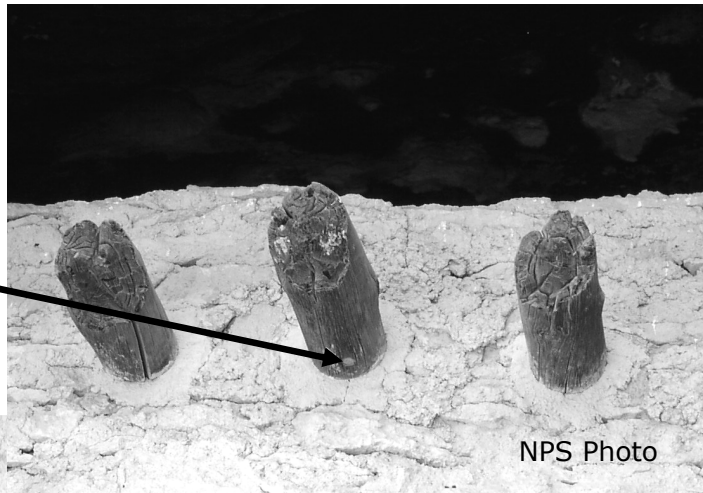
Dendrochronology: Tree ring dating tells us when timber was cut for roof beams and can help to determine when the dwellings were built.

Each tree ring represents one year in the life of a tree. A ring is made up of 2 layers. A light colored layer that grows in spring and a dark colored layer that grows in late summer or fall. The distance between a dark layer to the next dark layer equals one year.

In wet years, trees grow better and rings are wider. In dry years, or in severe winters growth is slower and rings are closer together. During really dry times, there might be no tree ring at all. Ponderosa Pines that have had fire around them will usually scar. This is a part of their natural lives. Core samples, which are straw-sized and bored using a hollow drill, are taken to date trees.

Sampling locations are visible today as small, numbered plugs in several roof beams and door lintels.

**Bore hole
Entrance to cave 3**



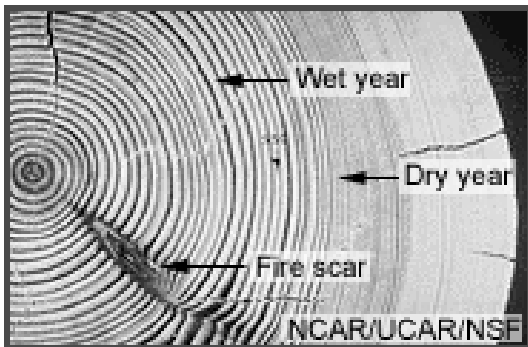
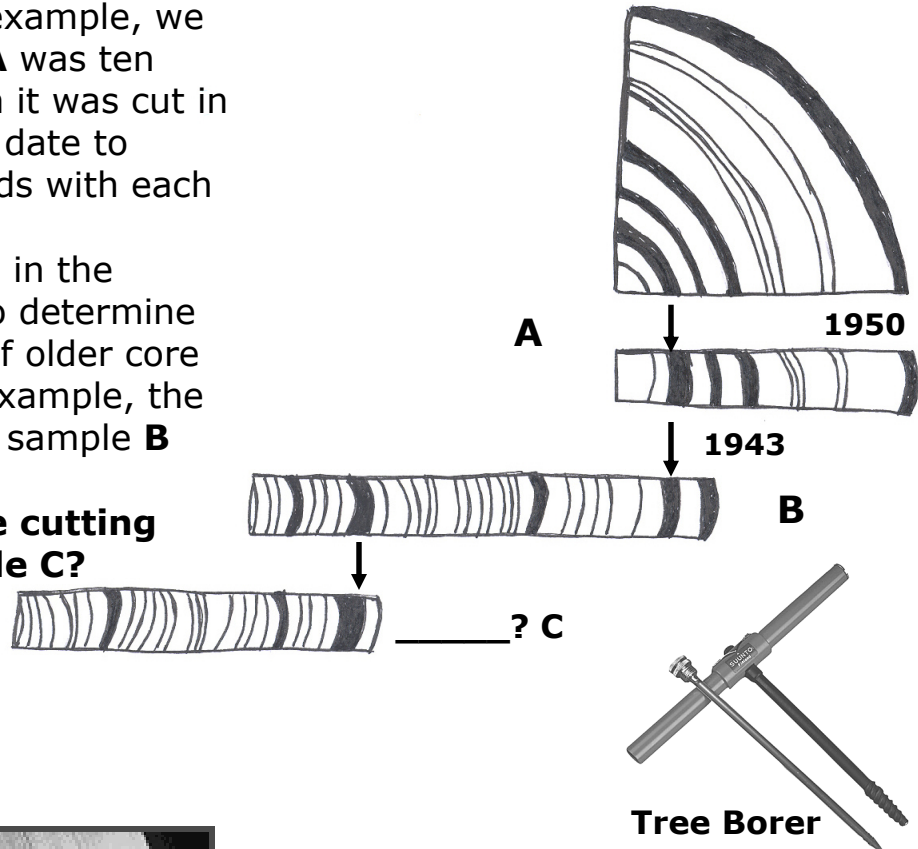
**Bore holes
Catwalk**

Fast Facts:

- ⇒ Thirty one core samples were taken from the wood in the dwellings.
- ⇒ The results indicate that the trees for the dwellings were cut down from 1276 to 1287.

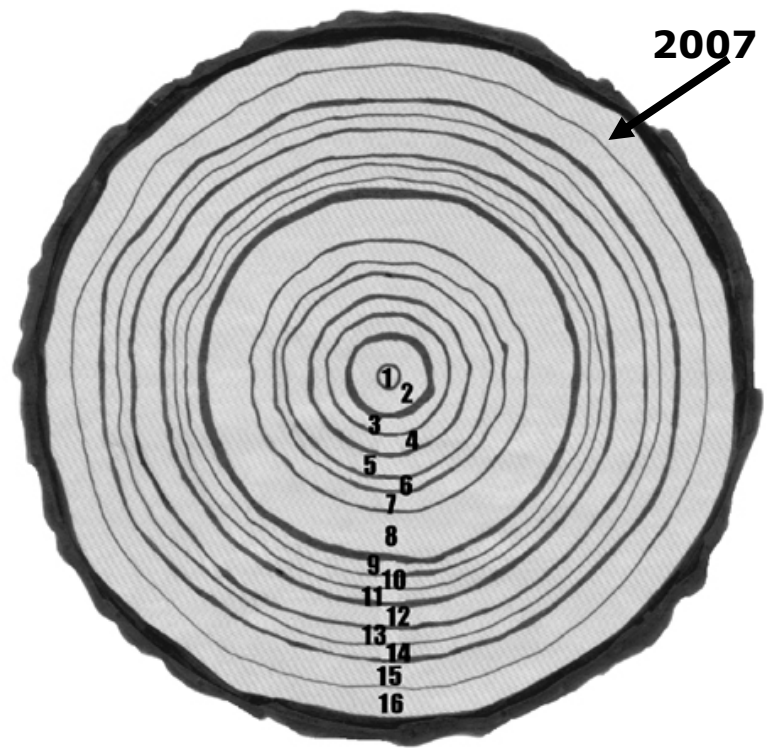
1. Take a core sample from a tree whose outer ring you can date. For example, we know sample **A** was ten years old when it was cut in 1950. Use this date to count backwards with each growth ring.
2. Match patterns in the growth rings to determine cutting dates of older core samples. For example, the cutting date of sample **B** was 1943.
3. **What was the cutting date of sample C?**

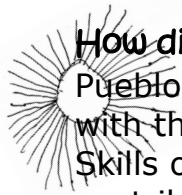
How Does Dendrochronology Work?



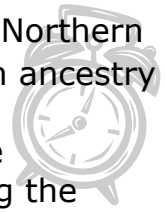
Draw an arrow indicating
 A wet year
 A dry year

Does this "cookie" show
 evidence of having
 survived a fire? _____
 Explain why or why not.





How did the Mogollon spend their days? Based on the lifestyles of the Northern Pueblo peoples at the time of European contact and who, today, claim ancestry with them, we can guess how the Mogollon people might have lived.



Skills of the parents were passed on to sons and daughters. Everyone contributed to the survival of the clan. Young males played by copying the older hunters learning to snare small animals and birds. As they grew older, they developed skills to hunt larger game.

Young females learned how to find, gather and prepare food. Females were responsible for housekeeping, preparing and decorating animal hides for clothing and knowing what plants could be used for different illnesses.

Compare a day in either your, your child's or your grandchild's life to a day in the life of a Mogollon Cliff Dweller of the same age. Keep in mind the effect seasons have on daily lives now and in the past.

DAILY PLANNER

Mogollon	Today
Daybreak	
Midmorning	
Noon	
Midday	
Evening	
Night	



“Pictographs reflect human intelligence. The Mogollon, and those before and after them, may have used pictographs to give a history of their journeys, to count the seasons of their lives, to chart the positions and trajectory of the stars and the moon, to invoke the assistance of the spirits, or to just doodle out their creative urgings. ”

George Page, Gila Songwriter
Gila Hot Springs, NM



Rock provided the paint (red iron ore crushed from hematite) and the canvas used to communicate. As you reflect on the images you see in the dwellings or at the Trail to the Past, think of an event in your life that could be represented by a symbol or series of symbols. **Draw it here.**

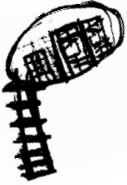
Would someone who knows you well be able to decipher your message?



Fast Fact:

- ⇒ Pictographs are painted onto the rock
- ⇒ Petroglyphs are carved into the rock

Coming to conclusions can be difficult. Given the natural resources and beauty of this canyon, what would have caused the Mogollon to leave around 1300 A.D.? Different visitors have different observations and interpretations of the cliff dwellings and Mogollon life.



"Our destination was the headwaters of the Gila River, ... formed by three respectful sized creeks. Following the west, or larger one, up two or three miles, we came upon a fine specimen of an old Cliff Dwellers village situated, as was their custom, in a crevice where there was good protection"

H. B. Ailman, 1878

First person to write about his visit.

Pioneering in Territorial Silver City; H.B. Ailman's Recollections of Silver City and the Southwest 1871-1892

"To one coming from the mouth of the cleft, the caves become visible only after he passes them, so they are well concealed. But while it would be difficult for an Indian foe to take the place by storm, its inhabitants could easily be cut off from water or starved... With all its natural advantages, therefore, this cave village was still extremely vulnerable."

Adolph F. Bandelier, 1884

First archeologist to record the dwellings.

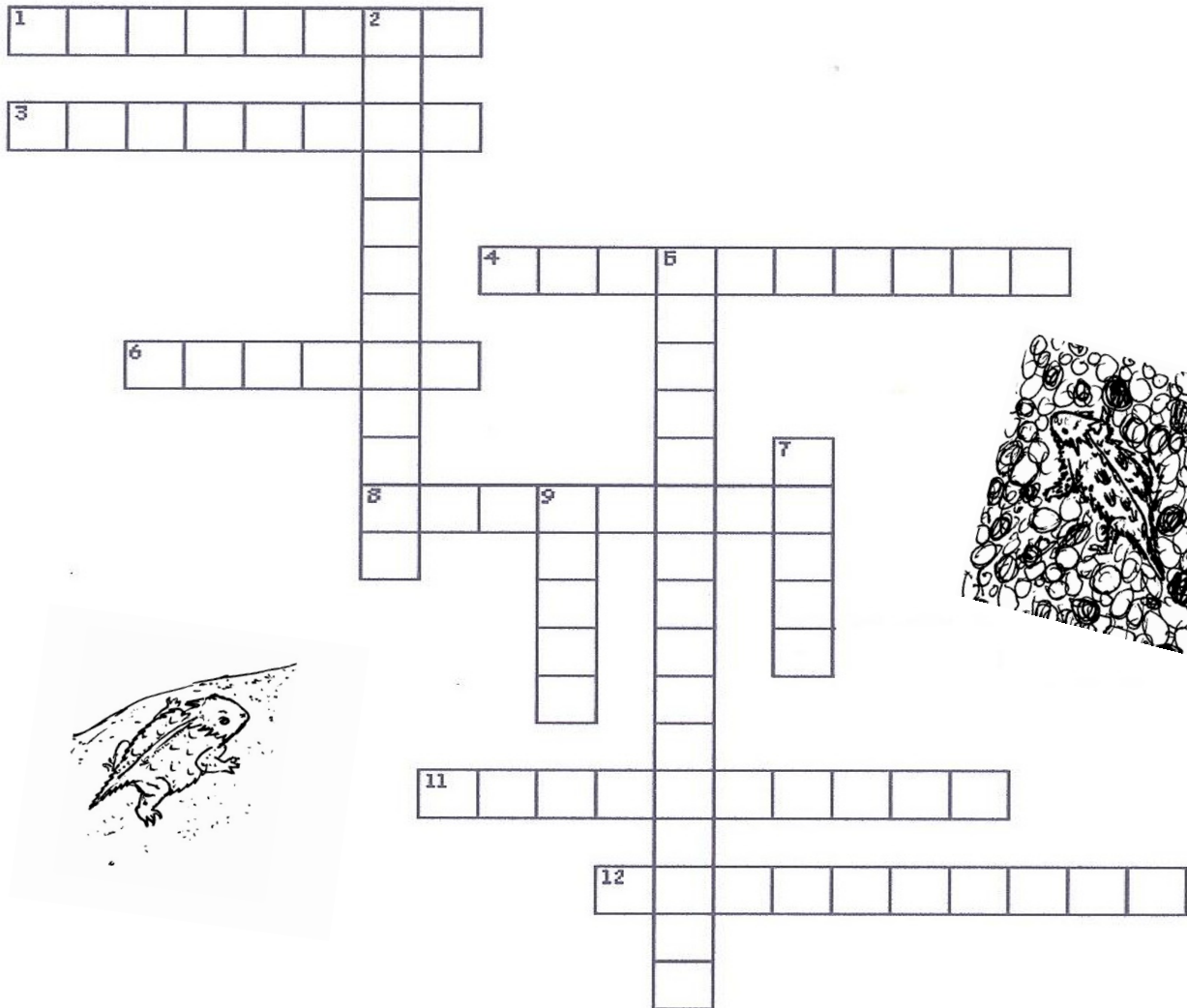
Final Report of Investigations among the Indians of The South Western United States, Part II



What are your observations, impressions and opinions?

Cliff Dweller Crossword Challenge

All the answers for this puzzle are located in the text of this book.



Across

1. Architecture, pottery, and corncob, for example
3. Another name for the Collard Peccary
4. An area where the earth and its community of life are untrammelled by man
6. To fully experience the cliff dwellings, use all of these
8. Type of pottery and the full name of the Mogollon who built the dwellings
11. Form of communication
12. Take only photographs, leave only _____

Down

2. Sedimentary rock from which the dwellings were built
 5. Science of tree ring dating
 7. This bird's feathers signify trade
 9. Needle and thread made from this plant
-

To discover more —

Explore the Natural History Exhibits at the Trailhead.

Walk the Trail to the Past at the Lower Scorpion Campground. The right fork takes you to a pictograph panel. The left fork goes to a small two room dwelling.

Visit the museum; watch a short video about the dwellings; take a virtual tour of prehistoric dwellings in other Southwestern National Parks; and browse the Western National Park Association's book store — all at the Gila Visitor Center.

As a **Senior Ranger** share your enthusiasm.

- ♦ Help others learn about their National Parks.
 - ♦ Encourage your friends, children and grandchildren to inquire and participate in other Junior Ranger programs throughout the National Park System
 - ♦ Be a Web Ranger at home www.nps.gov/webrangers
 - ♦ Be a volunteer. Find out how at www.volunteer.gov/gov
-

Many illustrations in this book first appeared in the Gila Cliff Dwellings National Monument Junior Ranger and Jr. Junior Ranger books, and were provided by the following Junior Rangers (names and ages as of 2006):

Bella Bjornstad, 10; Joe Bruemmer, 10; Max Bruemmer, 8; Keighley Hastings, 14; Preeya C. Janakiraman, 7; Claire Jorgensen, 9; Brenna Lambert, 14; Krista Lambert, 11; Kaila Perry, 4; Eleanor Thorman, 9; Gabriella Trevino, 5 1/2

Cover Illustrations: Brenna Lambert, 14, Krista Lambert, 11

Text, Design and Layout: C. Bree; Sonya Berger

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What Does the National Park Service Symbol Mean?

The Arrowhead shape represents historical and archeological treasures.
The Tree represents all vegetation.
The Mountains represent land formations, scenery and recreational opportunities.
The Bison represents all wildlife.
The Lake represents clean water and recreational opportunities.
The National Park Service was founded in 1916.

