



# Earth & Sky

The official newspaper of  
Petroglyph National Monument

2010 Volume Ten



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# 20 Years of Earth and Sky

By Dr. Joseph P. Sanchez  
Superintendent of Petroglyph National Monument

Since its establishment on June 27, 1990, the staff at Petroglyph National Monument has been dedicated to the preservation and protection of the invaluable cultural and natural resources within its boundaries. As we approach the anniversary of Petroglyph National Monument's first twenty years, we take time to ponder the antiquity of the petroglyphs made by Native Peoples and their relationship to earth and sky. The secrets of such knowledge are buried in timeless petroglyphs and archeological sites along many river valleys, ravines and escarpments of the American Southwest and northern Mexico. Notably, Petroglyph National Monument preserves over 20,000 petroglyphs many of which tell of equinoxes, solstices, and other features of possible sun-moon-earth relationships. That many Indian cultures had sophisticated knowledge about the sun, moon and night sky is especially evident at Chaco Canyon, the many Mayan sites, and Aztec temples. There are other stories behind each petroglyph, some of which were made by Spanish colonial settlers. Their legacy is our inheritance.

In the last twenty years, the challenges to Petroglyph National Monument's mission to preserve and protect its resources have become in-

creasingly evident. Changes in the last decade, in particular, have been dramatic to a stretch of land that was once vacant. Residential and commercial development around the Monument has occurred on all of its sides making it an island within the city limits. Today, two roads, Unser Blvd. and Paseo del Norte have divided Petroglyph National Monument into three parts. While the results have been positive in regard to the progression of the City of Albuquerque, the effects on wildlife have been significant. For example, disruption of animal patterns for hunting and migration through a once unencumbered

habitat has been affected. Visitor uses have been, to an extent, fragmented as the two roads have segmented visitor activities within the Monument to areas between the roads.

Currently, Petroglyph National Monument is developing a Visitor Use Plan to define activities and uses within the Monument. In that regard, the staff has taken a pro-active approach to managing the Monument. Within the context of these changes, consultation with associated tribes, who consider the Monument to be a sacred place, is ongoing. Thus resource protection takes many forms. To that end, the staff at Petroglyph National



*White House Photo*

President George H. W. Bush signs the law creating Petroglyph National Monument on June 27, 1990.

Monument is engaged in visitor services, law enforcement activities, natural and cultural resources monitoring programs, and facility management projects. These activities serve to preserve and protect the Monument's resources for the enjoyment of future generations.

As an urban park, Petroglyph National Monument is located within the fastest growing area of Albuquerque. Recent expansive plans for additional residential development near the south end of the Monument are underway. Additionally, three new elementary schools are within walking distance of the Monument. On the very edge of the city, residential lots adjacent to Petroglyph National Monument enjoy panoramic views that, by dint of their locations, are protected in perpetuity. Monument neighbors appreciate having a National Park in their own back yard. Today land acquisition is almost complete. When the monument was established in 1990, half of the 7239 acres were already in public ownership. The State of New Mexico transferred 640 acres to the Federal Govern-

**As an urban park,  
Petroglyph  
National Monument  
is located in the  
fastest growing area  
of Albuquerque.**

ment in 2001. In addition, the City owns several thousand acres of Major Public Open Space lands immediately adjacent to the monument. Those lands, while not within the monument boundary, are maintained in their natural state for recreational use and as an open space preserve. The lands are part of Albuquerque's 20,000 acres of designated and highly celebrated Major Public Open Space.

The City of Albuquerque and the National Park Service continue to manage the lands cooperatively within the monument boundaries consistent with a Memorandum of Understanding. While the National Park Service manages the Atrisco Unit, the federally-owned

portion of the Monument, the City of Albuquerque manages both the Boca Negra Unit and Piedras Marcadas Units. The logos of both the city Open Space and National Park Service are displayed on Monument signs and printed materials as a manifestation of the long standing cooperative relationship to manage this complex, dynamic and evolving national treasure.



*NPS photo*

When Petroglyph National Monument was created by congress on June 27, 1990, congress stipulated that the monument would be jointly managed by the city of Albuquerque and the National Park Service.



# Point of Reference

By Luis Garcia

Albuquerque Public School Teacher and former Park Ranger

Nestled on the west side of Albuquerque is Petroglyph National Monument which is considered a sacred place to the Pueblo peoples of the Rio Grande valley of New Mexico. The rich concentration of petroglyphs in this place is considered to be a cultural and sacred landscape as they are associated with the volcanoes, marking the place of emergence to the Pueblo people of the area. This place is also significant to geologists as it is also known as the Rio Grande rift, one of three rift zones in the world. Many different cultural groups recognize this place as a special place from ancient times to today.

As a Pueblo person residing in Albuquerque, the Petroglyphs have always been a point of reference throughout my life from my childhood into adulthood. I

always knew I was home when I saw the Rio Grande and the black cliffs of what is now Petroglyph National Monument. As a science educator of five years in a local public middle school, it is this sense of place that I see lacking with many of my students. This is attributed to two main factors.

One of these factors is the age of technology and video games. When I ask my students, if they have been to the Albuquerque volcanoes, some were unaware that there are volcanoes in New Mexico. The volcanoes, which appear as hills on the west side of Albuquerque, are pretty prominent

on the horizon. Perhaps they are often dismissed as just hills on the horizon and never given a second thought. Unfortunately, with today's technology, many young people would rather spend their time in doors playing video games.

Another factor is loss of language and culture. Both indigenous and hispano people

of the Rio Grande Valley have experienced loss of language and culture. As a child, I remember hearing stories told by my grandfather about this place. This was a place that was to be respected. During the period of Americanization of the 1920's, the people of the Rio Grande Valley suffered greatly as they were forbidden to speak their languages in schools and public places. Children were punished in school if

caught speaking any language other than English. This shift of language did away with many of the traditional stories associated with places like the petroglyphs.

Today's youth are faced with a lot of challenges. Many come from non-traditional families and must deal with many hardships throughout their education. It is my hope, that through an integrated curriculum, students are able to learn to appreciate such a rich cultural, historical, and scientific place as the Albuquerque Petroglyphs.

Many different  
cultural groups  
recognize this place  
as a special place  
from ancient times  
to today.



Petroglyphs in Rinconada Canyon



# The Pursuit of Knowledge

By Luke Fields  
Interpreter

Very often, the most common question that we receive at Petroglyph National Monument is in regards to the meaning of the petroglyphs. Sometimes that question is very basic, such as, “Hey ranger, do we know what the petroglyphs mean?” But in many instances the question isn’t based upon whether or not we know the meaning of the petroglyphs, but a request to have the meaning of the petroglyphs revealed to them. We feel that a lot of visitors expect us, as rangers, to be able to lead them to a 4-inch thick, dusty, leather-bound codex sitting upon a stand in the corner of the visitor center and assist them with deciphering the meaning behind any petroglyph that they may have seen while in the park. Unfortunately, no such codex exists, as the images carved here upon the rocks at Petroglyph National Monument 400 to 700 years ago are not hieroglyphics, or a written language.

Rather, the images that were carved here into the rocks by Native Americans and by early Spanish colonial settlers, each hold their own secrets and stories, that were certainly known by the person creating the petroglyph and perhaps by others at the time, but those secrets and stories are not readily accessible to those of us who live in the 21<sup>st</sup> Century. Many different groups claim heritage to these images today, and different groups have different meanings for different petroglyphs. One group may call an image of a bird a macaw, while another group may call it a morning dove. It is not the place of park rangers to choose who is right and which animal the image represents. So when we,

as rangers, are asked whether or not we know the meaning behind the petroglyphs, we must answer no.

Well, at least that is the answer most of the time. While many of the images here at Petroglyph National Monument hold their secrets closely, there may be some that researchers can convince to give up their meaning. Approximately 30 of the 28,000 images here at the monument are believed to represent brands left by early Spanish settlers.

Brands, unlike other imagery, are legally registered images that date back as a tradition to the middle ages.

Preliminary research on some of the brand images here at the monument has traced the use of brands back to the 1850s in the area of the monument, but it may be possible to trace these brand images back to the 17<sup>th</sup> and 18<sup>th</sup> centuries. Research is ongoing to determine if the

early Spanish colonial records contain references to livestock brands similar to those that are carved upon the rocks in the monument.

So what does this all mean? Does it mean that soon when a visitor asks what a petroglyph containing a brand means, that the ranger will be able to give a complete history of that image? Once again, unfortunately no. Tracing a brand petroglyph back to the ranch and land grant that registered it may let us know the origin of the image, but it still won’t tell us which person at the ranch carved the image, or more importantly why.

And that is really the crux of the whole matter. Knowing that a brand petroglyph is derived from



*NPS Photo by Luke Fields*

Petroglyphs of letters and Christian crosses, such as these in Rinconada Canyon, represent images carved by Spanish colonial settlers and their descendents.



Purple aster in Rinconada Canyon



*NPS Photo by Luke Fields*

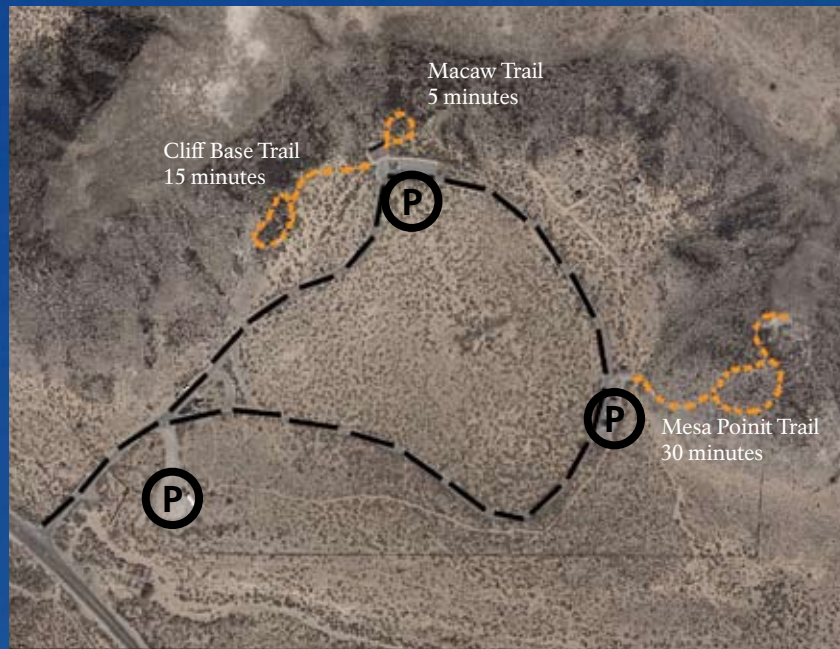
These abstract images may represent brands inscribed by Spanish Colonial settlers. Unlike other petroglyph images, it may be possible to trace the history of brands through early Spanish records.

say the Armijo family, or for that matter knowing whether that bird image is a macaw or a morning dove, doesn’t tell us what was going through the head of the person at the time that they carved it. It doesn’t tell us why that image was important, or what it meant to him or her at the time.

Today at Petroglyph National Monument we do not protect these images because we know the answer to all the questions. We protect these images because they were important enough for someone

400-700 years ago to carve them, and because the descendents of the land see their heritage here among the rocks, and this place is important to them. Tracing the origin of these brand images will not tell us the ‘why’ of the matter, but it can remind us that these images were important to real people at the time that they were carved, that they are not abstract designs without meaning and despite not knowing that meaning they still remain important to all of us today.





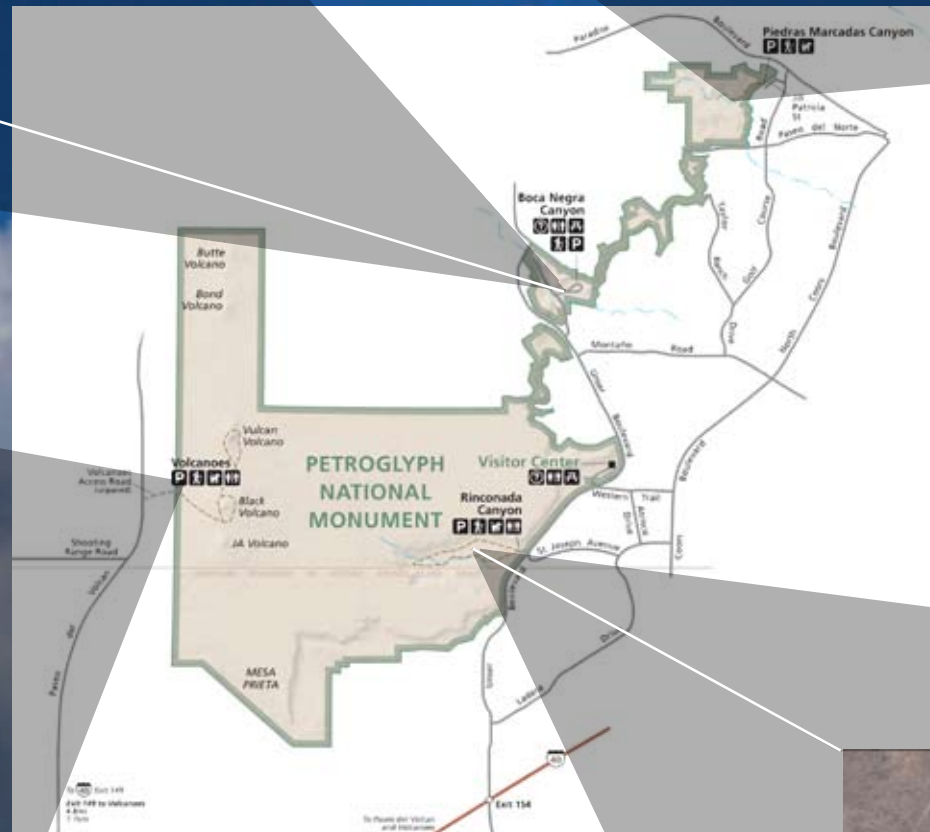
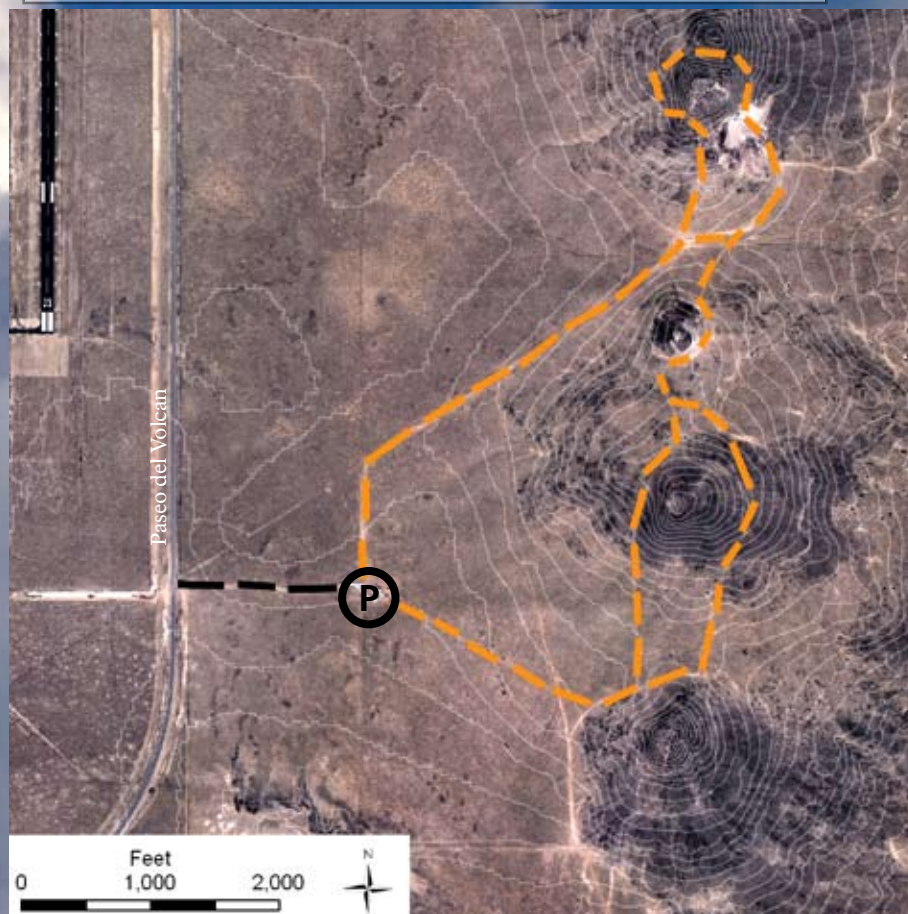
- Boca Negra Canyon**
- Developed trail system
  - Restrooms and drinking fountain
  - 3 short trails, partly paved
  - Trails are not wheelchair or stroller accessible
  - Pets are **not** allowed on the trails
  - Parking fee per vehicle:  
\$1 weekdays/\$2 weekends
  - America the Beautiful park passes available at the monument's visitor center.



- Piedras Marcadas Canyon**
- Undeveloped trail system
  - 1.5 miles round-trip on a sandy, dirt path
  - Takes approx. 1.5 hours to complete the out and back trail
  - Water is not available, carry plenty of water
  - No restroom facilities
  - See approx. 400 petroglyphs
  - Pets allowed but must be on leash at all times
  - Free trail guide available at the visitor center



- Volcanoes Day Use Area**
- Unpaved trail system with several scenic miles of hiking
  - Water is not available, carry plenty of water
  - Pit restroom facilities available at the trail head
  - Pets allowed but must be on leash at all times
  - Free trail guide available at the visitor center
  - There are no petroglyphs at the volcanoes
  - Hikes range from one to three miles round trip



- Rinconada Canyon**
- Undeveloped trail system
  - 2.2 miles round-trip on a sandy, dirt path
  - Takes 1 1/2 to 2 hours to complete the loop
  - See approx. 500 to 700 petroglyphs
  - No water is available, carry plenty of water
  - Pit restroom facilities at the trail head
  - Lock vehicles; set alarms, do not leave valuables in your vehicle.
  - Pets allowed but must be on leash at all times
  - Parking lot gate locks at 5 pm.
  - Free trail guide available at the visitor center





# Green is Gold

By Diane Souder  
Chief of Interpretation

Las Imágenes Visitor Center, once the home of Dr. Sophie Aberle and William Brophy, was purchased for use as the Petroglyph National Monument Visitor Center in 1991. This adaptive reuse of an adobe home created an instant place for visitors to learn about the monument's resources. Shading of the patio and use of shade ramadas helps keep the visitor center cool in the heat of the summer while the massing of the adobe structure historically keeps the temperatures warmer in winter.

Sustainable landscaping adds beauty and helps maintain a special sense of place. The native vegetation planted in front of Las Imágenes Visitor Center, together with the interpretive signage, not only helps to inform visitors about native plants, but also their traditional uses by Native Americans and early Spanish settlers. Additionally, the plants help conserve water and minimize weeding or mowing. The National Park Service seeks to maintain a natural landscape as much as possible, an effort which works to

ensure a successful stewardship...taking care of the resources for present and future generations.

Petroglyph National Monument staff does not use herbicides, pesticides or fertilizers because of their impact on the natural environment. A drip watering system has been installed to help some plants survive long periods of drought. Some plants, especially those that have been here a long time, may experience damage by small animals but that is part of the natural process.

An energy audit was conducted a few years ago, and since then the staff has replaced existing lighting with energy efficient equivalent using natural lighting whenever possible (solar tubes were installed in roofs), installed motion detectors on entrance way lights and solar lights in the parking lots, and directed outdoor lighting downward to help reduce light pollution.

Environmentally responsible green cleaning practices help protect park resources by reducing or eliminating the release of harmful chemical pollutants into the environment. Here, park managers use fewer and safer cleaners and more energy efficient maintenance equipment. You may smell the fresh scent of citrus; know that the center is cleaned entirely with "green" products! As might well be expected, Petroglyph National Monument staff reduces the unnecessary consumption of natural resources by reducing waste and purchasing environmentally preferable products, using paper products with post-consumer recycled content, and buying products with reduced packaging.

Throughout the park, you will see recycling centers. We recycle plastic, aluminum, and glass. Recycling, along with proper disposal of food wastes and trash, can reduce litter and pest problems in the park. Using the easily identified recycling receptacles for waste will reduce the amount of garbage sent to the local landfills. So help us think green! These recycling centers along with a boardwalk at Boca Negra Canyon, benches at the visitor center, and garbage cans are all made from recycled plastic lumber.



Western National Parks Association is a nonprofit cooperating association of the National Park Service. Headquartered in Tucson, Arizona, the association was founded in 1938 as the Southwest Monuments Association to support the interpretive activities of the National Park Service.

Today we operate bookstores at sixty-five National Park Service sites throughout the western United States, plus an online store with more than 600 educational products. In addition to developing publications, Western National Parks Association supports park research and helps fund programs that make park visits more meaningful.

One of our founding goals was to create and publish park-related information unavailable elsewhere. Currently we have more than 175 books in print with many new publications introduced yearly.

Western National Parks Association supports parks by producing more than a half million pieces of free literature annually, including trail guides, newspapers, schedules, and brochures.

Since our 1938 founding, we've contributed more than \$25 million to national parks, generated through store sales to park visitors and the support of our members.

Visit our online store, [www.wnpa.org](http://www.wnpa.org), and browse dozens of award-winning publications on national parks, military history, geology, American Indians, earth sciences, field guides to plants, animals and birds, cookbooks, children's books, prehistoric cultures, archeology, natural history, maps, and much, much more.



Greater Roadrunner  
*geococcyx californianus*





# Why Earthscope? Because *Shift* Happens

By Susanna Villanueva  
Park Ranger

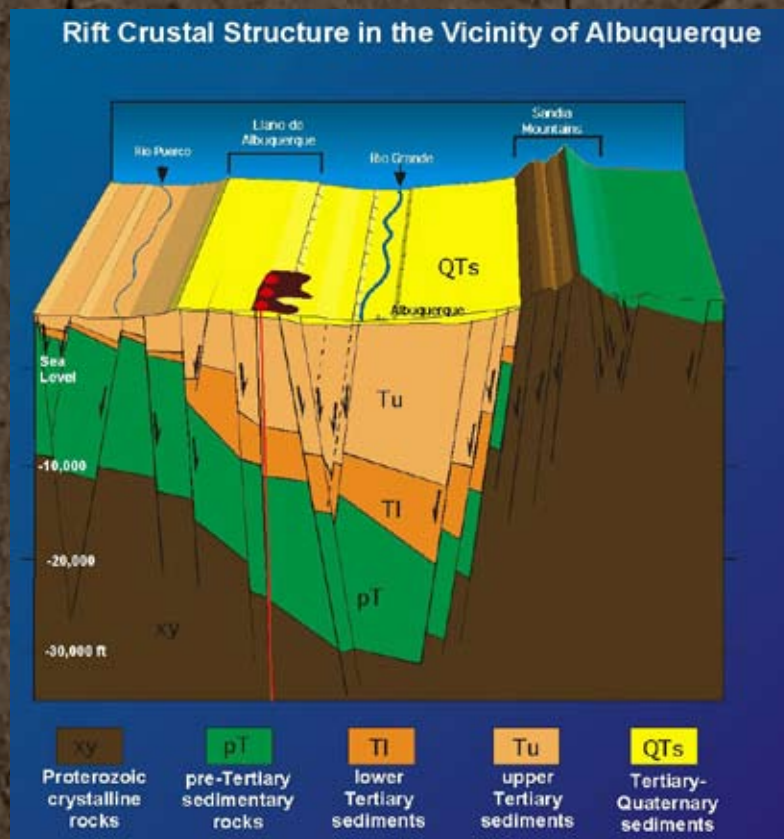
Petroglyph National Monument is located along the western edge of the Rio Grande Rift. Its ancient volcanic flows are the direct result from the rift's activity over the last 30 million years. Continental rifts are created when Earth's crust stretches and thins creating an elongated valley on the surface. The Rio Grande Rift runs south to north from Chihuahua, Mexico to Leadville, Colorado. Rifts like the Rio Grande form basins that fill with sediments over millions of years. In Albuquerque, the basin sediments are three miles deep.

Rift movements can be caused by relative tectonic plate shifting, gravity, and rising magma bodies. Here we have two of the three processes causing a little movement; the slight rotation of the micro tectonic plate called the Colorado Plateau, located just west of the Rio Grande Rift; and the rising of a large magma body that is under Socorro, New Mexico (50 miles south of Albuquerque). How much movement and shifting are we talking about? Is Albuquerque going to have a large-scale earthquake or a volcanic eruption? This is where EarthScope comes into the picture.

EarthScope is a nationwide effort that applies the latest science and technology to explore the structure and evolution of the North American continent and understand processes that cause earthquakes and volcanic eruptions. The western United States is a prime target area for EarthScope to investigate processes that result in elevated topography, earthquakes, and volcanism because it's hot, literally. The crust under the western U.S. is young, hot, and restless. That's why we have such diverse topography, from some of the highest mountain ranges to the lowest desert flats.

How is EarthScope studying the Rio Grande Rift? A team of scientists from the University of Colorado and the University of New Mexico, with funding from the National Science Foundation,

are collecting data on how much the Rio Grande Rift is moving by setting global positioning systems (GPS) in a grid system that runs from the central Colorado Rockies into southern New Mexico. The team is using GPS instruments, which rely on satellites for their measurements, to measure the miniscule movements of the Rio Grande Rift. Results have confirmed that the movements of the rift are small and slow, only between 0.5 and 2 millimeters per year.



Graphic by Larry Crumpler, Ph.D.,  
NM Museum of Natural History and Science

EarthScope is a collaborative project whose partners include the National Science Foundation, the USGS, and NASA. For more information on EarthScope visit [www.earthscope.org](http://www.earthscope.org)

# Ongoing Discovery

By Ronald C.D. Fields  
Archaeological Technician

Frequently we think of our local National Parks or National Monuments as static, changeless and little to nothing new happening. Yet nothing could be further from the truth. At Petroglyph National Monument we are always making new discoveries and adding more to the rich and diverse cultural history of the area.

A case in point is when one of the Monument's buildings was affected by rainwater. It was decided that some alterations to the landscape may deflect the rain water away from the building. Given the location of the building and its modern use as a residence, it was thought that the likelihood of discovering any historic or prehistoric cultural material would be nonexistent.

However such was not the case. During the review or survey of the area we discovered a basalt projectile point. This point is classified as a Jay or Rio Grande and dates from around 11,000 B.P. to 8,000 B.P. (years before the present). This projectile point dates back 8,000 years! It is not an arrowhead. This point was used on a spear-shaft and was thrown using a device called a spear-thrower or atlatl.

Shortly thereafter, we discovered other chipped stone artifacts suggesting that this point

wasn't lost during a hunt but rather was left behind in a camp or a site where the prehistoric First Americans were manufacturing stone implements.

What is known about sites of this period is that they, "...are thought to be seasonal occupations. Most are on cliff tops at canyon head locations with others established at mainly basalt raw outcrops. The overall technology expressed in assemblages linked to the Jay phase requires future study..." as stated by Noel Justice in his 2002 *Stone Age Spear and Arrow Points of the Southwestern United States*.

Fortunately for us, we have this projectile point to tell us how old the site is, without it we would be clueless. This shows how important it is to leave artifacts in place or *in-situ* in their original context so that they may provide all of us a complete narrative of our ancestors and the use of the landscape at that moment in time. The Monument staff has

subsequently registered this site with the State's Archaeological Records Management Section and will avoid disturbing the site in the future. Who knows what other stories this site may provide to us in the future regarding our past?



Jay Projectile Point  
Ca. 11-8,000 B.P.



Pueblo IV pot sherd and cracked earth



# Kids Corner



Are you interested in exploring? Do you like art, science, history or nature? How about plants and animals, sailing ships, dinosaurs or trains? Would you like to learn more about the National Parks that belong to you? Then becoming a Junior Ranger could be for you!

Many National Parks offer visitors the opportunity to join the National Park Service family as Junior Rangers. Interested students complete a series of activities during their park visit, share their answers with a park ranger and receive an official Junior Ranger badge or patch and Junior Ranger certificate.

Children grades K-6 can learn more about Petroglyph National Monument by participating in our Junior Ranger program. Ask at the visitor center desk for your Junior Ranger booklet so you can earn your badge, patch and certificate.

New at Petroglyph National Monument is the Senior Ranger Program. Designed for anyone over the age of 12, the Senior Ranger Program explores the natural and cultural resources of the monument at a more challenging level. If you are interested in participating in this program, please ask at the information desk for a Senior Ranger booklet, a monument brochure and a geology brochure. Those completing the Senior Ranger Program will earn a patch, pin and postcard.



*NPS photo by Diane Souder*  
There are hundreds of parks that offer Jr. Ranger programs, how many can you earn?

## Newspaper Information

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S	L	A	R	I	P	S	Q	Q	O	R	G	C	H	F
I	D	S	T	A	O	A	P	U	E	B	L	O	S	U
L	R	F	O	V	T	T	C	N	S	T	Y	D	I	O
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I	V	R	A	W	S	B	A	W	O	G	R	C	V	G
O	E	O	K	M	H	Y	C	V	G	O	A	B	T	T
G	R	D	E	S	E	R	T	V	A	R	N	I	S	H
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D	E	V	R	A	C	N	Z	R	E	D	L	U	O	B
E	U	Q	J	A	T	V	B	A	S	A	L	T	P	T

## Can you find these words?

BASALT  
BOULDER  
CACTUS  
CARVED  
DESERT VARNISH  
ESCARPMENT  
JACK RABBIT  
LAVA  
LIZARD  
MILLIPEDE  
PETROGLYPH  
POTTERY SHERD  
PUEBLO  
RANGER  
RIO GRANDE  
ROAD RUNNER  
SPANISH  
SPIRAL  
VOLCANO  
YUCCA

Remember kids, even bugs, like this stink bug, are under Ranger Protection inside National Parks and Monuments

Darkling beetle  
*tentyrrinae bothrotes*



# Regulations and Safety

- All visitors must stay on existing trails to avoid damage to fragile desert vegetation.
- Pets are allowed (except in Boca Negra) but must be on a leash 6 feet in length or less, must be under the control of the handler at all times, and have their waste removed to a trash receptacle.
- Motorized vehicles (ATVs, motorcycles) are only permitted in parking lots.
- State firearms laws apply. The discharge of any weapon is prohibited. Target practice, sport shooting, traps and hunting are prohibited. The carrying or shooting of BB/air soft/pellet guns, sling shots or paintball guns is prohibited.
- All fireworks are prohibited.
- Camping is not permitted anywhere within the park.
- Please pack out any trash you may have with you during your hike.
- All physical and cultural objects (plants, rocks, animals, petroglyphs, and other archaeological remains) are protected by law.
- It is prohibited to excavate, remove, damage, or otherwise alter or deface any archaeological resource.
- Damaging or altering fences or signs is prohibited.

## FOR ALL EMERGENCIES DIAL 911

To Report Violations Call:

National Park Service  
505-899-0205

OR

City of Albuquerque  
Open Space Dispatch  
505-452-5206

Open 7am to 6 pm

Park Hours:

Visitor Center - 8 am to 5 pm  
Boca Negra Canyon - 8 am to 5 pm  
Rinconada Canyon - 8 am to 5 pm  
Volcanoes - 9 am to 5 pm



Petroglyph National Monument  
is jointly managed by the  
National Park Service and the  
City of Albuquerque



Don't leave valuables unattended!



Swainson's Hawk  
*buteo swainsoni*

Illustration courtesy of Lisa Horstman/GSMA