



The Paisano

Big Bend National Park
Rio Grande Wild & Scenic River
Visitor Guide

Volume 37 number 1 2016/17



D. CORRICK

The new Fossil Discovery Exhibit located eight miles north of Panther Junction.

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Celebrating the New Fossil Discovery Exhibit! Grand Opening - January 14, 2017

At the Fossil Discovery Exhibit visitors can experience the changes to Big Bend's plants and animals, and the world they lived in, through 130 million years of geologic time. Specimens from Big Bend's remarkable fossil record and full-color artwork help to illustrate the fascinating story of Big Bend's ancient life.

- The story begins at a time when a broad, shallow sea covered Big Bend and much of Texas, leaving behind a fossil record that includes mosasaurs (swimming reptiles), predatory fish, sharks, and numerous "sea shell" fossils, such as clams, oysters, snails, and sea urchins.
- As the ancient sea receded, Big Bend became a swampy, coastal environment, much like the coast of Texas today but inhabited by dinosaurs and giant alligators.
- Later, the coastline moved farther to the east, and Big Bend was crossed by rivers and forests, where dinosaurs roamed and giant pterosaurs soared overhead.

- After the extinction of the dinosaurs, mammals flourished, including those whose bones were found just a stone's throw from the Fossil Discovery Exhibit.

Located 8 miles north of Panther Junction on the Persimmon Gap Entrance Road (Highway 385), the Fossil Discovery Exhibit is a self-guided interpretive experience. The exhibit is open from dawn to dusk. A shaded picnic area is nearby, and it has an assortment of fossil-themed climbing structures for children. A vault toilet is available at the site (no water is available). Cellular telephones generally can get reception at the site.

The Fossil Discovery Exhibit is the most significant addition to Big Bend National Park's visitor services system in the past 50 years. Thanks to the generosity of individuals, corporations, and foundations across the state in an effort led by the Big Bend Conservancy, this \$1.4 million exhibit will give park visitors the opportunity to meet the past right where actual fossils were found.



M. LAVENDER

Superintendent's Message

Welcome to Big Bend National Park and Rio Grande Wild and Scenic River, two very special places managed by the National Park Service. The 100th anniversary of the National Park Service was celebrated throughout 2016, bringing higher than average visitation and many first-time visitors to Big Bend. The Centennial was a huge success here and across the country.

I encourage you to get out and explore the park's roads and trails, enjoy a ranger program, experience our amazing dark night skies, and discover those places that make Big Bend memories for you. Don't forget to leave time to visit our newest education feature, the Fossil Discovery Exhibit, that highlights the park's geologic history and the plants and animals that have lived here through time.

National parks like Big Bend belong to us all, so we have a shared responsibility to take care of this special place. Thank you for treating this park gently. And visit often!

Cindy Ott-Jones
Superintendent Cindy Ott-Jones



The Fossil Discovery Exhibit.

NPS PHOTO

To:

Big Bend National Park
PO Box 129
Big Bend National Park, TX
79834



EXPERIENCE YOUR AMERICA™



National Park Service
U.S. Department of the Interior
Big Bend National Park
Rio Grande Wild & Scenic River

The National Park Service was established on August 25, 1916, "... to conserve the scenery and the natural and historic objects and the wildlife... 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."

Authorized by Congress in 1935 and established in June 1944, Big Bend National Park preserves the most representative example of the Chihuahuan Desert ecosystem in the United States.

Park Mailing Address

Big Bend National Park, PO Box 129
Big Bend National Park, TX 79834

Phone

432-477-2251

Park Websites

www.nps.gov/bibe/
www.nps.gov/rigr/

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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.

EXPERIENCE YOUR AMERICA™



The Fossil Discovery Exhibit

By Amy Atwater, Paleontology Intern

The site of the new Fossil Discovery Exhibit in Big Bend National Park has a long history of providing information about park fossils to curious visitors.

The first fossil exhibit was established in 1957, and displayed actual mammal fossils as they had been discovered. The fossils remained in the rock where they were uncovered, but a building was constructed around the rocks to allow visitors the opportunity to see the fossils in their original state.

In the spring of 1990 the park decided to make the fossil exhibit more accessible for all visitors, and so the building was moved closer to the parking lot. Unfortunately, this meant that visitors were no longer seeing the fossils in their original positions but instead saw plaster replicas.

This exhibit remained until the spring of 2016 when work began on the new structure. Today Big Bend National Park is proud to welcome visitors to the Fossil Discovery Exhibit. It is a fitting showcase for the many important fossil discoveries made in Big Bend, and partially paid for by generous contributions from the Big Bend Conservancy and visitors like you.



Above: The first Fossil Bone Exhibit built in 1957.



Above: The second Fossil Bone Exhibit built in 1990.

Support Your Park!

Become a member of one of our non-profit park partners to create a lasting relationship with Big Bend National Park. Proceeds fund visitor services and scientific research within the park.

Member Benefits

Membership benefits include a 15% discount in BBNHA bookstores; a subscription to the *Big Bend Paisano*; a current Big Bend calendar; discounts at many other association bookstores in other national park sites; and the opportunity to support scientific, educational, and research programs in Big Bend.

Annual Dues

- Individual \$50
- Associate \$100
- Corporate \$200
- Joint Membership \$100

Life Membership

- Individual/Family \$500
- Corporate \$1000
- Benefactor \$2500

Do more with your dues!

Purchase a dual annual membership in both Big Bend Natural History Association (BBNHA) and the Big Bend Conservancy (BBC) for only \$100.

Join online at:

www.bigbendbookstore.org

For more information call the BBNHA:
432-477-2236

Paleontologists Barnum Brown and R.T. Bird in Big Bend

By Amy Atwater, Paleontology Intern

Barnum Brown is one of the most well known dinosaur hunters of all time. In 1900 he famously discovered *Tyrannosaurus rex* in Montana. In the summer of 1940 Barnum Brown and his long-time field assistant, R.T. Bird, left New York and journeyed into the desert badlands of what is now Big Bend National Park to search for dinosaur fossils. They drove an old Ford delivery wagon into sections of the park that would challenge a 4x4 vehicle today.

Brown and Bird explored many areas of the park and collected a number of scientifically significant fossils. Some of their most impressive finds included skull parts of the giant alligator *Deinosuchus*, a skull of the armored dinosaur *Edmontonia*, and skull and limb bones of the large duck-billed hadrosaur called *Kritosaurus*.

Brown and Bird also collected bones of the titanic long-necked sauropod *Alamosaurus* from the late Cretaceous (72 million years ago) rocks of the park. Prior to his trip to Big Bend, Brown had questioned the survival of sauropods into this time period. The giant Big Bend bones finally convinced Brown that

long-necked dinosaurs did indeed survive into the late Cretaceous, which opened up Big Bend as the best place to study these prehistoric giants.

The *Alamosaurus* bones collected by Brown and Bird would be the last dinosaur fossils Brown would ever collect during his paleontological career. Brown was in his late sixties during his time in Big Bend and museum duties as well as the onset of World War II prevented him from unearthing any more fossils.

Below: Paleontologists R.T. Bird, a colleague, and Barnum Brown pose with a *Deinosuchus* skull at the American Museum of Natural History.



Above: Paleontologist Barnum Brown at work in Big Bend with a homemade wheelbarrow.



Big Bend and the Border



J. JURADO

The Fluid Border

In addition to defining the curve that forms the Big Bend, the Rio Grande also serves as the international boundary between the United States and Mexico. Throughout much of its history, the border along the Rio Grande has been fluid, allowing people of both countries to come and go as needed. However, the border is an artificial boundary imposed on the natural environment, and as such is subject to political and social pressures that continue to evolve. Increased border restrictions have led to a number of important changes that affect the international boundary in Big Bend.

Border Safety

- Know where you are at all times, and use common sense. Cell phone service may be limited in areas of the park.
- Keep valuables, including spare change, out of sight and lock your vehicle.
- Avoid travel on well-used but unofficial “social trails.”
- Do not pick up hitchhikers.
- People in distress may ask for food, water, or other assistance. Report the location of the individuals to park staff or Border Patrol as soon as possible. Lack of water is a life-threatening emergency in the desert.

- Report suspicious behavior to park staff or the Border Patrol. Do not contact suspicious persons.
- Ask at the visitor center about areas where you may have concerns about traveling.

Border Merchants

Near the border, you may encounter small “souvenir stands,” and Mexican Nationals may attempt to sell you their crafts. Social trails created to place items and refuse left behind contribute to erosion problems and contamination of the watershed. Removal of natural resources from the park or Mexican protected areas causes resource damage. Individuals who place items are subject to arrest for illegal entry and commerce. They will be held until deported through Presidio, 100 miles from Big Bend National Park.

Items purchased illegally will be considered contraband and seized by officers when encountered. Port of Entry staff can answer questions about items that can be *legally* purchased and imported through the Port. By purchasing souvenirs legally, you support the citizens of Boquillas, make the river corridor safer for all visitors, and help protect the resources of this ecosystem.

Border Crossing

The Boquillas Crossing Port of Entry is the gateway for visitors who wish to visit Mexico. Proper documentation is required to enter Mexico and re-enter the United States. Information about documentation and Boquillas is available from the staff at the Port of Entry or visit the U.S. Customs website at:

http://getyouhome.gov/html/eng_map.html



M. YARBROUGH

A Member of the Boquillas Taxi Fleet.

Visiting Boquillas

- Everyone needs a passport; Mexico requires it for entry, and you must show your passport on return to the U.S.
- Citizens of countries other than the U.S., Mexico, Canada, and Bermuda need additional documentation (Check with Port of Entry staff).
- The Port of Entry is closed two days per week. Hours and days of operation are limited and subject to change. Check at park visitor centers for the current Port of Entry operations schedule.
- There are fees in Mexico for the ferry and transportation into the village.
- There are specific regulations regarding what you may take with you and what you may bring back.
- All persons are subject to search both inbound and outbound from the Port of Entry.

Protecting Yourself and the Park

Big Bend may be wild and unfamiliar country, yet it need not be dangerous. Whether hiking, floating the Rio Grande, observing wildlife, or driving the scenic roads, let safety be your constant companion. By giving forethought to your actions you can have a safe, exciting, and rewarding experience in Big Bend National Park. Spend a moment reviewing these common safety considerations and resource protection guidelines.

Collecting

It is the mission of the National Park Service to preserve all natural and cultural resources unimpaired for future generations. Taking things like geodes or arrowheads, or collecting plants or animals robs everyone of this heritage—once something is stolen, it cannot be replaced.

Please, do not destroy, deface, injure, dig, collect, or otherwise disturb park resources including plants or animals (dead or alive), fossils, rocks, or artifacts. It is a violation to possess park resources. Please, take only pictures and leave only footprints.

Driving

Drive within the speed limit (maximum of 45 mph in most areas) and watch for wildlife grazing along the roadsides, especially at night. Park roads have limited shoulders and some are steep and winding and require extra caution. Remember, too, you share the road with bicyclists and pedestrians. Pull off the road to take pictures—do not stop or pause in roadways. Please, slow down...and enjoy!

Drones/Unmanned Aircraft

Launching, landing, or operating an unmanned aircraft is prohibited in Big Bend National Park.

Heat

The dry desert heat quickly uses up the body's water reserves. Carry and drink water—at least 1 gallon per person per day. As you exercise, you lose salt and water (over a quart and a half per hour during arduous exercise). You need both to survive in this extreme environment. Reduce alcohol and caffeine intake—the diuretic effects can result in accelerated loss of body water.

Protect your body—sensitive skin burns easily. Find shade, wear sunscreen, sunglasses, and a brimmed hat. Wear long-sleeves, trousers, and proper shoes.

Hiking

Trails vary from easy and well maintained to strenuous primitive routes. Plan hikes within your ability. Avoid ridges during thunderstorms, and canyons or creek beds when flash flooding is possible. Carry a flashlight and first aid kit, and let someone know where you are going and when you expect to return. If you get hurt or lost, stay in one place to conserve water and energy.

Please keep your children close; don't let them run ahead on trails.

Water Conservation

- Visitors are limited to 5 gallons of water per day and are encouraged to conserve further; please consider bringing some of your water from home.
- Be water-wise when using the restroom; don't let faucets run unnecessarily.
- Wash only what clothing items you need.
- Fill water jugs and bottles at Rio Grande Village whenever it is convenient.
- Consider topping off RV water tanks at your next destination.
- Take brief showers.
- Please report noticeable faucet or water leaks.
- Use backcountry water sources sparingly; leave backcountry springs for wildlife.

Wildlife

Observe Big Bend's wildlife from a distance. Wildlife is protected in the park; it is illegal to harass or harm wildlife. Never feed wild animals. Feeding wild animals damages their health, alters natural behaviors, and exposes them to predators and other dangers. Protect wildlife and your food by storing food and trash securely.

Venomous snakes, scorpions, spiders, and centipedes are active during warm months. Pay attention: check shoes and bedding before use and use a flashlight at night.

Pets in the Park



Having a pet with you may limit some of your activities and explorations in the park. Abiding by these pet regulations will ensure a safer, more enjoyable visit for yourselves, other park visitors, your pet, and the park's wildlife.

- Pets are not allowed on trails, off roads, or on the river. Your pet can only go where your car can go.
- Pets need to be on a leash no longer than six feet in length (or in a cage) at all times.
- You may not leave your pet unattended in vehicles if it creates a danger to the animal, or if the animal becomes a public nuisance.
- If you plan to hike, someone must stay behind with the pet, or you will need to make arrangements with a kennel service. There is no kennel service in the park.
- Pet etiquette and park regulations require that you always clean up after your pet and dispose of waste in trash receptacles.

Did You Know?



Above: The towering limestone cliffs of the Sierra Ponce (left), Santa Elena Canyon (center) and the Mesa de Anguila (right).

B. TRESTER

Microscopic Fossils Create Massive Rocks

By Eileah Sims, Paleontology Intern

Fossils of many sea-dwelling critters including ammonites, oysters, sea urchins, and snails are found in rocks called limestone. Limestone is made up of a mineral called calcium carbonate. But, what most people don't know is that limestone is made up of millions of microscopic fossils called microfossils.

Tiny, photosynthetic organisms called nanoplankton and microscopic animals called foraminifera live in the surface waters of the ocean. Both the nanoplankton and foraminifera use the calcium carbonate dissolved in the ocean water to form their shells. The foraminifera form chambered shells (similar to a nautilus) while nanoplankton form individual shells called

coccoliths. These coccoliths interlock to create a protective sphere called a coccosphere.

When the organisms die, the coccosphere breaks apart into the individual coccoliths and sinks to the bottom of the ocean, along with the foraminifera shells. Since these shells are made of calcium carbonate, they dissolve easily in deep ocean water. Due to the higher acid content, not every fossil makes it to the seafloor. In shallower depths, the shells are allowed to collect on the sea bottom into a layer of fossil-rich sediment. This then solidifies over millions of years to form limestone.

To the naked eye, the limestone just looks like a rock. Scientists use a special type of microscope such as a scanning electron microscope (SEM) to see the microfossils. These microfossils provide valuable information about past climates that can be used to help predict the future of our planet.

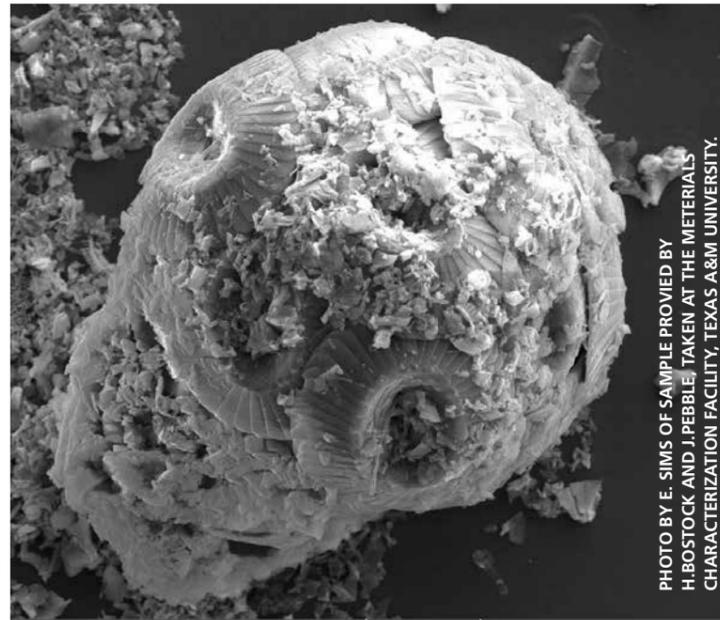


PHOTO BY E. SIMS OF SAMPLE PROVIDED BY H. BOSTOCK AND J. PEBBLE TAKEN AT THE MATERIALS CHARACTERIZATION FACILITY, TEXAS A&M UNIVERSITY.

A rare look at a complete fossilized nanoplankton coccosphere through a scanning electron microscope. The many individual calcium carbonate shells or "coccoliths" that compose the coccosphere are visible here.



A piece of petrified wood.

Resource Protection

A Sad Story

By Amy Atwater, Paleontology Intern

The process of fossilization is slow-going and extremely rare. Once a fossil is gone, it can never be replaced. Fossil theft and casual collecting in national parks has led to the loss of invaluable scientific information.

In 2000 Dr. Tom Lehman and Dr. Elisabeth Wheeler published a scientific paper about the petrified woods of Big Bend National Park. Their study only required a very small sample of each petrified log they found, which allowed the fossil resources to remain in the wild of Big Bend. In their publications they purposefully excluded the exact location of these valuable resources because of concern of illegal collecting.

Three samples of the petrified logs Dr. Lehman and Dr. Wheeler described belonged to a new genus, *Baasoxylon parenchymatosum*. This fossil tree has only been found in Big Bend National Park and nowhere else in the world.

In 2002, Dr. Lehman and Dr. Wheeler returned to Big Bend to check in on their petrified wood sites. As they walked towards the spot where they found *B.*

parenchymatosum, they noticed fresh footprints leading in the same direction.

The tracks led directly to the site of this rare fossil wood, and the petrified log was almost entirely gone. Only small flakes of wood remained next to impressions in the ground where the log had formerly lain. One third of all the known specimens of this rare fossil wood had been stolen from Big Bend.

The poachers were likely unaware of the rarity and scientific significance of this fossil. They acted on selfish impulses and collected fossils illegally in a national park. This is stealing a resource from the citizens of the United States and future generations. There is no tolerance for fossil theft at Big Bend National Park, and those individuals caught face jail time and expensive fines.

You are encouraged to look for fossils in Big Bend and enjoy the thrill of discovery. However, please leave the fossils in place for others to experience and study. We invite you to photograph your fossil finds and share your photos with a Park Ranger. Writing down a description of where you found the fossil is helpful, too. The fossils you discover may be the missing piece in our understanding of Big Bend's rich paleontological history.

Dinosaurs are Still Alive and Well in Big Bend!

By Amy Atwater, Paleontology Intern

Dinosaurs lived in Big Bend National Park from 83 to 65 million years ago. Though dinosaurs are extinct, their closest living relatives, birds, still flourish in the park.

When I saw my first roadrunner I was struck by the bird's colorful markings and that cool hairdo. We now know that many dinosaurs had feathers. I wonder which dinosaur would have looked most like the roadrunner?

When I see a mother quail dart across the road with her flock, I can't help but think of a family of duck-billed dinosaurs sticking together against a fearsome predator. I hear the squawk of the crows and wonder what calls dinosaurs would have used to communicate. Would *Tyrannosaurus* have



Above: An artist's depiction of a small feathered dinosaur. Below: A modern roadrunner.

acted more like a peregrine falcon, moving stealthily to take down its prey? Or like a turkey vulture, using its vast size to capitalize on the kills of others?

So often in paleontology we only have the bones of the animals to interpret—the skin and feathers rarely preserve. This makes it exciting to imagine the possibilities of dinosaur decorations and will hopefully inspire a new generation of paleontologists who will figure out the pieces of the paleontology puzzle.

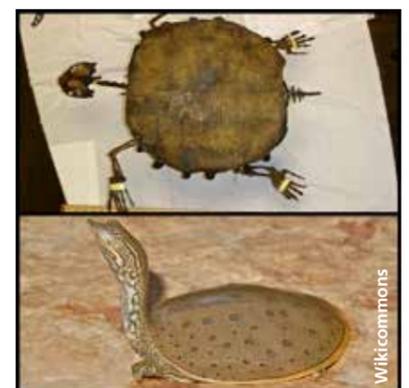
Turtles Past and Present

Amy Atwater, Paleontology Intern

The fossil record present in Big Bend National Park encompasses more than 130 million years of geologic time. In all that time and rock, one reptile is found throughout it all—the turtle.

Between 130- 80 million years ago Big Bend was a shallow sea where *Terlinguachelys* the sea turtle thrived. When Big Bend was a coastal floodplain 83-72 million years ago, *Trionyx*, a type of soft-shelled turtle lived in streams and ponds. Their descendants, the spiny soft-shelled turtles, still live along the Rio Grande today.

Big Bend was an inland floodplain environment from 72- 55 million years ago. At this time turtles such as *Baena* could be



Above: A fossilized turtle. Below: A modern Gulf Coast spiny softshell turtle.

found in forested rivers and ponds. The tortoise *Geochelone* called Big Bend home during the volcanic highlands, approximately 20 million years ago. Many varieties of turtle still live in Big Bend and can be seen around the banks of the Rio Grande. Next time you see a turtle in the park, be sure to show some respect for this 130 million year park resident!



Big Bend Fossil Finds

By Eileah Sims, Paleontology Intern

One hundred thirty million years of geologic time is preserved at Big Bend, one of the longest and most complete sequences of geologic time in a national park. Big Bend is also the only national park with rocks crossing the K-Pg boundary which marks the extinction of the dinosaurs.

So it is not surprising that there is an abundance of fossil finds here at Big Bend. In fact, over 1200 different species have been found, and some have been found only at Big Bend.

Significant Fossil Discoveries in Big Bend:

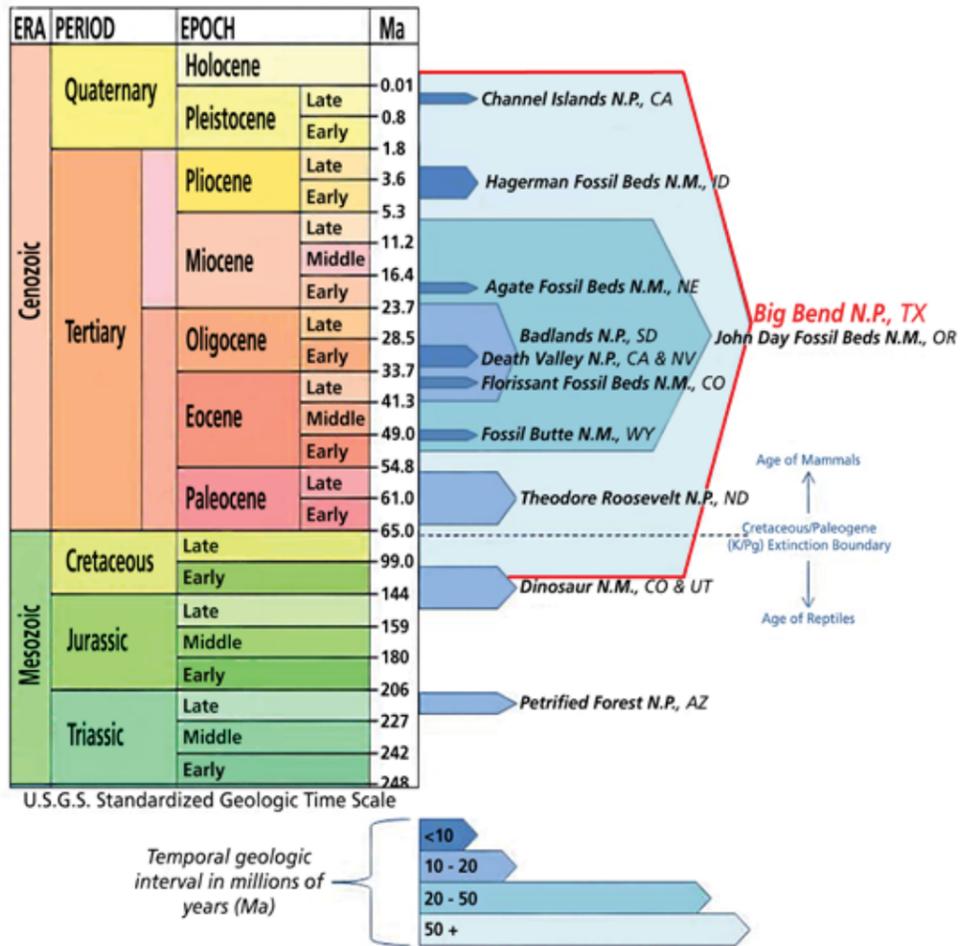
- Horned dinosaurs such as *Agujaceratops mariscalensis* and *Bravoceratops polyphemus*. The Fossil Discovery Exhibit currently has the only *Bravoceratops* specimen on display.
- Long-necked sauropod, *Alamosaurus sanjuanensis*. This large dinosaur grew up to 80 feet (24 meters) long.
- The pterosaur, *Quetzalcoatlus northropi*. This was the largest known flying creature of all time with a wingspan of 36 feet (11 meters).
- Duck-billed dinosaur (hadrosaur), *Gryposaurus alsatei*. A partial skull, vertebrae, and limb bones were found along with Big Bend's first and Texas's

- second dinosaur skin impressions.
- Mosasaurs (large, predatory marine reptiles) found at Big Bend may represent the oldest North American mosasaurs ever found.
- Giant alligatoroid, *Deinosuchus*, was discovered by famous paleontologist Barnum Brown in 1940. This prehistoric alligator could grow up to 39 feet (12 meters) long.
- Eighteen stumps of 2 species of flowering tree (*Metcalfoxylon* and *Agujoxylon*) were found in their original growth positions. This "paleo-forest" allows scientists to determine the height and density of the ancient forest by measuring the distance between the stumps and their diameter.
- Mammals such as the brontothere *Megacerops*, the early mammal *Coryphodon*, as well as the "dawn horse" *Hyracotherium* have also been found at Big Bend.

See the verticle timeline (right) for a graphic illustration of the scope of geologic time preserved in sediment layers found within in the park. Many of these layers have the potential to contain fossils. While many parks have fossil-bearing rock layers from large spans of geologic time, few approach the vast breadth of time and varied landscapes represented in the rocks at Big Bend.

NPS Units Containing Substantial Vertebrate Fossils

Most "fossil parks" contain rock strata from relatively isolated time periods. Big Bend National Park has one of the most diverse assemblages of vertebrate fossils spanning one of the longest geologic timeframes of any unit of the National Park System. It is also the only vertebrate fossil park with rocks that were laid down at the time of the extinction of the dinosaurs.



Ancient Mammals



An eight-foot tall brontothere skeleton being mounted.

Despite their large size, brontotheres were vegetarians that browsed in the volcanic highlands. The largest of the brontotheres in North America was *Megacerops*, the fossils of which are found in Big Bend National Park today. *Megacerops* was not only huge, but also had an unusual facial ornamentation, a large forked horn jutting off of its nose. It almost looks like a sling shot was stuck on its face! The forked horn is thought to have been useful for male-male competition for mates.

Thunder Beasts

By Amy Atwater, Paleontology Intern

One of the largest mammal fossils found in Big Bend belongs to the rhinoceros-like animal the brontothere. Brontothere means "thunder beast," a name that comes from the stories native Americans told about the giant bones they discovered after heavy rains. They believed the bones belonged to giant horses that ran through the sky and created the loud thunder on the plains below.



A brontothere skull showing the unusual facial ornamentation.



Above: An artist's impression of two brontotheres facing off approximately thirty-five million years ago in the Volcanic Highlands environment of Big Bend. Brontotheres are among many ancient mammal fossils found in the park that are perhaps not as well known among visitors as the more familiar specimens of dinosaurs, giant crocodiles, and enormous flying reptiles discovered here.

What to See and Do

Chisos Basin

A drive to the Chisos Basin is an excellent way to experience the transition between arid desert and cooler mountain habitats. As this scenic, winding road rises over two thousand feet above the desert floor, it offers vistas of the mountain peaks and the erosion-formed basin area.

Within the Chisos Basin area is a visitor center, campground, lodge, restaurant, gift shop, camp store, and miles of hiking trails.

With limited time, walk the Window View Trail for easy access to mountain vistas and a classic sunset view. If time permits, consider hiking (or backpacking) into the High Chisos to witness the towering forests of Boot Canyon or the unparalleled vistas of the South Rim.

Note: the road into the Basin is not suitable for RVs longer than 24' or trailers longer than 20'.



Rio Grande Village

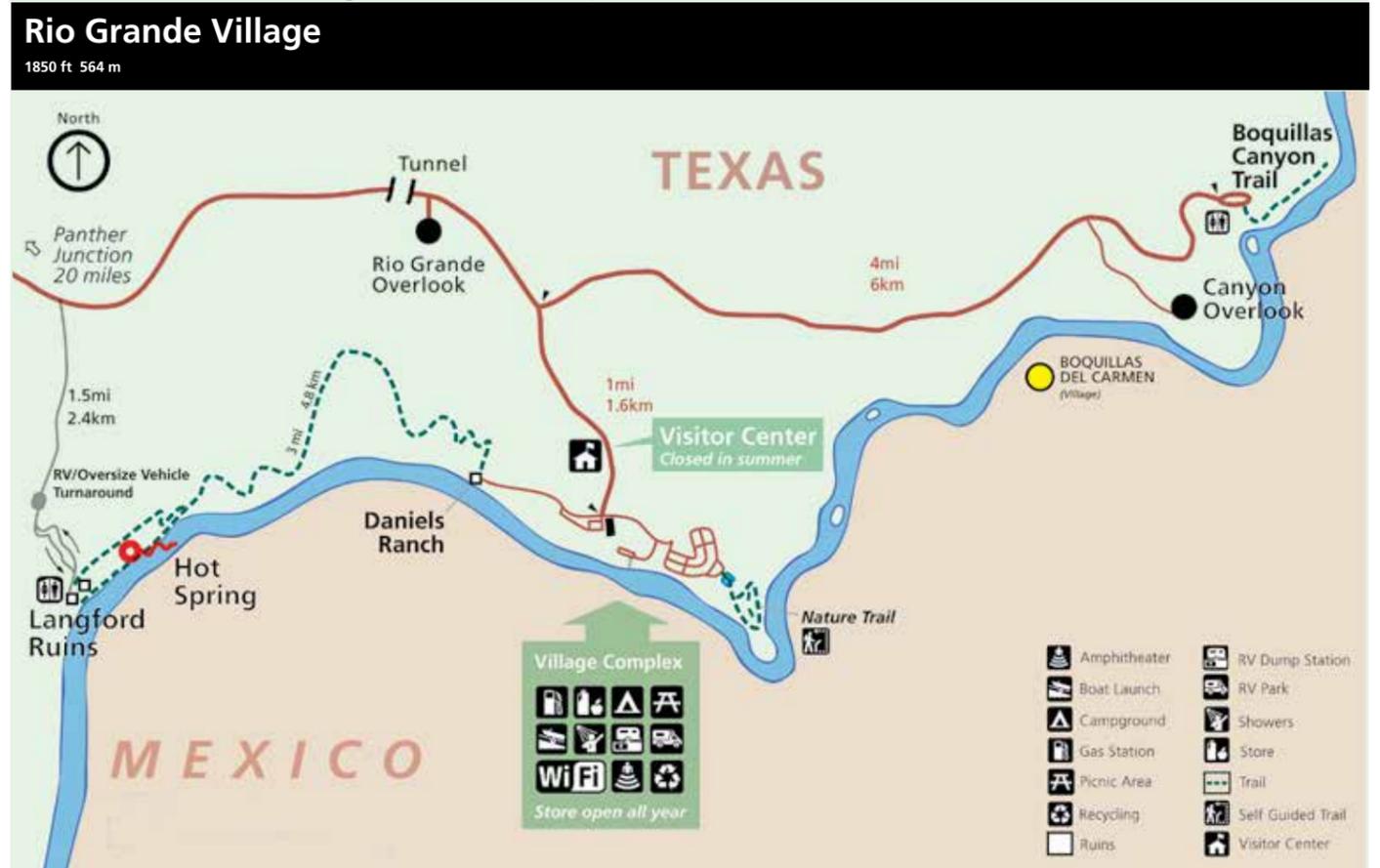
The drive to Rio Grande Village traverses ancient limestone and has marvelous vistas of the magnificent Sierra del Carmens. Along the way is the oasis at Dugout Wells, and a spur road leads to the popular Hot Springs.

Continue the drive to Boquillas Canyon, where a short hike offers excellent views of the Rio Grande as it enters the canyon.

Rio Grande Village has a visitor center, campground, RV hook-ups, camp store, gas station, and picnic area.

Take a stroll (or a short drive) from the store to Daniels Ranch; this is a great area for birding. Picnic tables are near the historic ruins.

The Rio Grande Village Nature Trail crosses a wildlife viewing boardwalk, then gradually climbs the hillside, offering panoramic views of the river, Sierra del Carmens, and Crown Mountain. This is an excellent sunset vista.



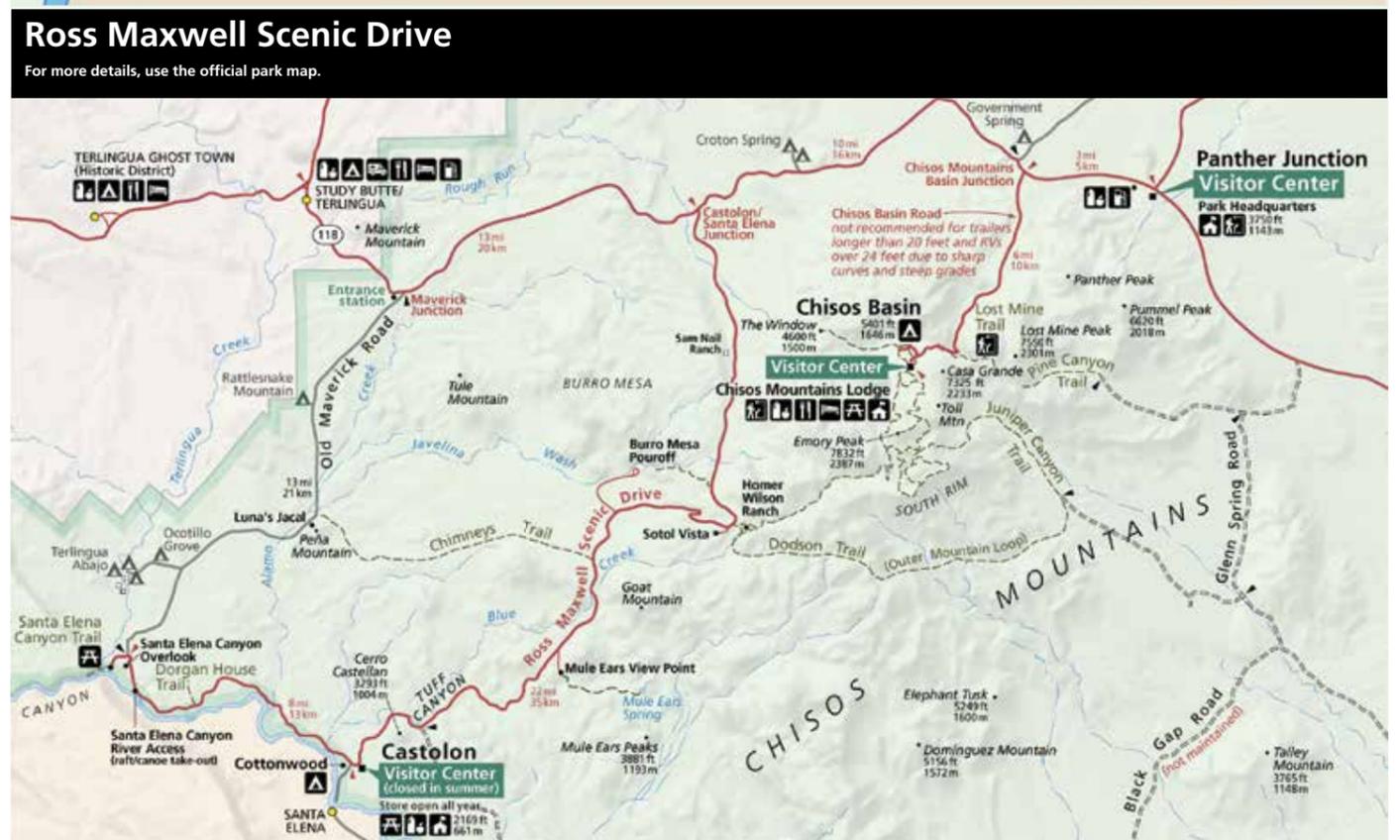
Ross Maxwell Scenic Drive

A trip along the Ross Maxwell Scenic Drive highlights the geologic splendor Big Bend is famous for and offers many scenic overlooks and exhibits along the way. Sotol Vista, Mule Ears Overlook, and Tuff Canyon are all worthwhile stops.

History is highlighted at Sam Nail Ranch, Homer Wilson (Blue Creek) Ranch, and the Castolon Historic Compound. Castolon has a visitor center, camp store, and nearby is the Cottonwood Campground.

Continue the drive to the magnificent Santa Elena Canyon, where limestone cliffs rise 1,500' above the Rio Grande. A short trail leads into the canyon.

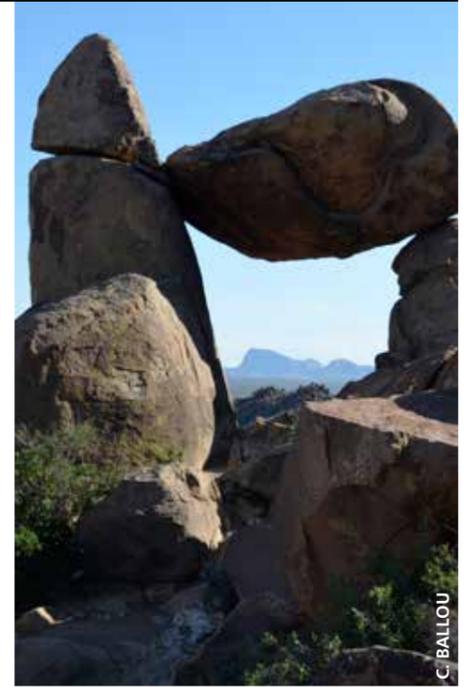
Return by the same route, or take the gravel Old Maverick Road to the western entrance of the park. This road is usually passable for most vehicles, but may be impassable after heavy rains. Check at a visitor center for current conditions.



Popular Day Hikes

The Chisos Mountains *Smoking is prohibited on all trails in the Chisos Mountains.*

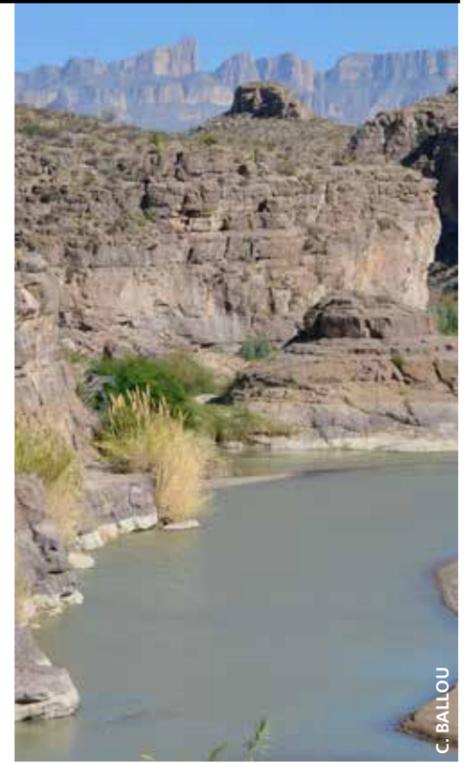
| Trail | Trailhead Location | Round Trip (mi/km) | Avg Time | Elevation (ft/m) | Description |
|--|---|--------------------|---------------------|----------------------|--|
| Basin Loop | Chisos Basin Trailhead (near the Basin Store) | 1.8/2.6 | 1 hour | 350/107 | Moderate Connects the Laguna Meadow and Pinnacles Trails. Nice views of the Basin area. |
| Emory Peak | Chisos Basin Trailhead (near the Basin Store) | 10.5/17 | 7 hours | 2400/789 | Strenuous Trail leads to the highest peak in the park, with excellent views. The end of the trail involves some moderate rock scrambling. |
| Lost Mine  | Basin Road, mile 5 (at the pass) | 4.8/7.7 | 3 hours | 1100/335 | Moderate Excellent mountain and desert views. For a shorter hike, 1 mile up is a great view to the southeast. |
| South Rim | Chisos Basin Trailhead (near the Basin Store) | 12/19.4 15/24 | 8 hours 10 hours | 2000/656 2000/656 | Strenuous Trail leads to a 2000' cliff with incredible views of the desert below. Hike either the southwest rim, or add the northeast and southeast rim trails when open. |
| Window  | Chisos Basin Trailhead or Basin Campground | 5.6/9.0 4.4/7.0 | 4 hours 3 hours | 980/299 500/152 | Moderate Descends to the top of the Window pour-off. Great scenery and wildlife viewing. For a shorter hike, start from the Basin Campground (near campsite 51) |
| Window View  | Chisos Basin Trailhead (near the Basin Store) | 0.3/0.5 | 1/4 hour | 0/0 | Easy Level, paved, accessible. Great mountain views. Best place in the Basin to catch a sunset through the Window. |



Balanced Rock at Grapevine Hills.

Eastside — Panther Junction and Rio Grande Village

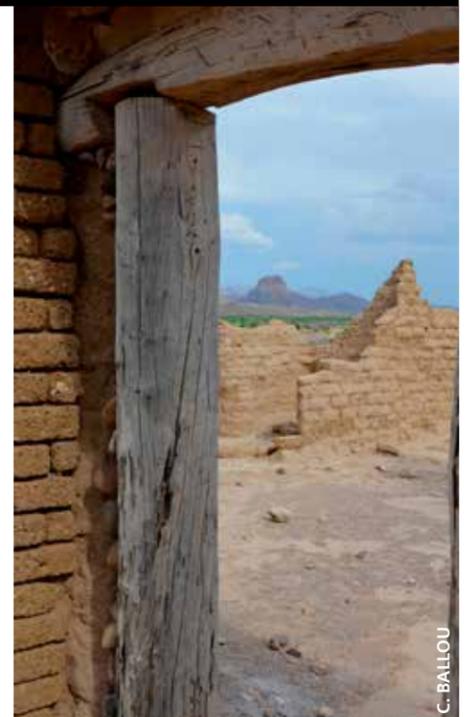
| Trail | Trailhead Location | Round Trip (mi/km) | Avg Time | Elevation (ft/m) | Description |
|--|--|--------------------|----------|------------------|---|
| Grapevine Hills Balanced Rock | 6.4 miles down the Grapevine Hills Road | 2.2/3.5 | 1 hour | 240/73 | Easy Follows a sandy wash through a boulder field. A short but steep climb near the end takes you to a large balanced rock. No shade. |
| Chihuahuan Desert Nature Trail | Dugout Wells | 0.5/0.8 | 1/2 hour | 10/3 | Easy Loop trail with interpretive signs on desert ecology. Look for javelina tracks and resident birds. |
| Hot Springs  | End of Hot Springs Road (unpaved narrow road) | 0.75/1.2 | 1/2 hour | 0/0 | Easy Walk past historic buildings to the riverside hot spring. Enjoy a soak in 105°F water. <i>Hot Spring is subject to flooding during rising river levels.</i> |
| Boquillas Canyon | End of Boquillas Canyon Road | 1.4/2.3 | 1 hour | 40/12 | Easy Begins with a short climb, then descends via a sandy path to the river. Ends near a huge sand dune "slide." |
| Daniels Ranch to Hot Springs Trail | Daniels Ranch parking area, west of Rio Grande Village | 6/10 | 3 hours | 100/31 | Moderate Trail from Daniels Ranch to the Hot Springs. Cliff drop-offs prevent access to the river along most of the route. No shade. |
| Rio Grande Village Nature Trail  | Rio Grande Village, across from campsite 18 | 0.75/1.2 | 1 hour | 130/40 | Easy First 300' leads to a wildlife viewing platform on a pond. Trail then climbs the hillside with views of the river and mountains. Great for birding and sunsets. |



Daniels Ranch to Hot Springs Trail.

Westside — Ross Maxwell Scenic Drive

| Trail | Trailhead Location | Round Trip (mi/km) | Avg Time | Elevation (ft/m) | Description |
|----------------------------------|---|--------------------|----------|------------------|---|
| Sam Nail Ranch | Ross Maxwell Scenic Drive, mile 3 | 0.5/0.8 | 1/2 hour | 10/3 | Easy Well-maintained trail leads through the old ranch site. The combination of water and shade makes this an excellent birding location. |
| Lower Burro Mesa Pour-off | Burro Mesa Spur Road | 1.0/1.6 | 1/2 hour | 60/18 | Easy Trail enters a dry wash and ends at the bottom of the dramatic Burro Mesa pour-off. A great walk for viewing geological features. |
| Chimneys | Ross Maxwell Scenic Drive, mile 13 | 4.8/7.7 | 2 hours | 400/122 | Moderate Flat and scenic desert trail to rock formations of an eroded dike. Look for Native American rock art and shelters. No shade. |
| Mule Ears Spring | Ross Maxwell Scenic Drive, mile 15 | 3.8/6.1 | 3 hours | 20/6 | Moderate Beautiful desert hike to a small spring. Spectacular geology with mountain and desert views. |
| Dorgan-Sublett Trail | Castolon to Santa Elena Canyon Road, near mile 5 | 1.0/1.6 | 1/2 hour | 56/17 | Easy This short easy trail leads to the ruins of historic farm houses owned by settlers in the early to mid-1900s. |
| Santa Elena Canyon | Ross Maxwell Scenic Drive, 8 miles west of Castolon | 1.6/2.6 | 1 hour | 80/26 | Easy This trail crosses Terlingua Creek (usually dry) and gradually climbs up to an overlook before dropping to the river bank. Trail has some steep steps and can be very hot midday. |



Dorgan-Sublett Trail.

Birds and Bird Watching



NPS PHOTO

Birding Hot Spots

Panther Junction to Rio Grande Village

- Dugout Wells—shady cottonwood trees and a windmill at this desert oasis.
- Rio Grande Village Nature Trail—a boardwalk over the pond is an excellent area for water fowl.
- Daniels Ranch Picnic Area—the cottonwood trees provide excellent shade to both resident and migrant species.

Ross Maxwell Scenic Drive

- Sam Nail Ranch—windmills and large trees attract birds to this historic ruin.
- Blue Creek Trail—a half mile from the Homer Wilson Ranch are the Red Rocks, an area known for hummingbirds.
- Cottonwood Campground—large trees here provide a haven for birds.

Chisos Mountains

- Basin area—many mountain birds can be found around the campground and basin developed areas.
- Boot Canyon—the nesting area of the Colima Warbler and other species.
- South Rim—this 2000' cliff is known for falcons and swifts.

Birding in Big Bend

Big Bend National Park is famous for its birding, with more documented species of birds visiting the park throughout the year than any other unit in the National Park System (approximately 400).

The area's diverse array of plant and animal habitats ranging from the lush river corridor of the Rio Grande to the moist, forested canyons of the Chisos Mountains present an attractive stopping point for birds traveling along major migratory paths that intersect the park. In addition, some non-migratory bird species that are more commonly spotted in the Eastern U.S. are present year-round in the Chisos Mountains, hundreds of miles from their usual home range.

A good rule of thumb for birding in Big Bend is to seek out areas where water and vegetation are most abundant, such as the Rio Grande, the Chisos Mountains, or the desert springs, some of which are accessible by car.

Generally the most active time for birding is in the spring when many species are migrating through the park. However with

patience birding in Big Bend is rewarding throughout the year.

The riparian corridor at Rio Grande Village offers some of the best year-round birding in the park. Consider walking the Rio Grande Village Nature Trail or visiting the Daniel's Ranch picnic area west of the campground. A similar habitat is accessible between Cottonwood Campground and Santa Elena Canyon on the park's west side.

The piñon-oak-juniper woodland of the Chisos Mountains and their foothills also offer accessible, year-round birding, and attract many species of birds that would not otherwise be found here. It is well worth the effort to hike into the higher elevations. During early summer you may spot the sought-after Colima Warbler, which is only found outside of Mexico in the Chisos Mountains.

Patience, a good field guide, and knowledge of where to look are the keys to locating birds in Big Bend. A checklist of birds is available for purchase at any visitor center and is a great aid in determining which species are likely to be present and the habitats where they are found.

Reporting Observations



CIBALLOU

A painted bunting.

Park visitors are often our eyes and ears for rare or unique bird sightings. If you see something worth recording (a bird listed as rare, sporadic, or otherwise not listed on the park's checklist), please stop in at a visitor center and fill out an observation report. Be sure to record all pertinent information such as an overall description of the bird, activity or behavioral comments, habitat, time of day, and most importantly, the exact location of where the bird was seen.

Night Skies



WIKICOMMONS

Of Darkness and Solitude

By Bob Smith, Park Ranger

One of the foundational concepts of the national parks and the National Park Service which was created in 1916 to care for the parks, was the idea that solitude and wildness is a necessary component of a healthy society. We now know that artificial light that was and still is being installed at a great rate, detracts heavily from the natural environment and contributes to the degradation of ecosystems wherever artificial light exists. As the Park Service grew in the early 20th century, most parks and monuments that were being added to the system were in the western United States, and for the most part wild and dark, unfettered by artificial light. There were many writers, commentators and thinkers at the time that believed that preserving nature, to be used by man as a place of refreshment

and rejuvenation, a link to days past, was necessary for a balanced civilization. These thoughts and ideas gave rise to the National Park Service.

As humans have continued to "light the night" with ever increasing vigor, places like Big Bend and other wild parks become even more important as *Oases of Darkness*, which can give those that desire to escape the bounds of the city or civilization, a place to revert to a time when nature was part of the human existence. Parks like Big Bend preserve not only darkness for the benefit of people, more importantly, they allow flora and fauna to thrive in environments that each and every species evolved to exist in—cycles of light and dark, varying in length only by the seasons, for millions of years.

Resource scientists, through extensive research, have found that both plants and animals are having increasing difficulty adapting to artificial light. In some species,

migration and reproductive cycles are disturbed by this light. Predator and prey relationships are altered as nocturnal adaptations are interrupted or made difficult by this same human-caused element. Yet the amount of artificial light continues to expand. Every day. Seemingly without end. What will be the ramifications for the future?

Big Bend National Park is one of the darkest places in the lower 48 states. As such, is a place that nature exists on terms nature decided many eons ago. It is also a place of solitude, where people can recapture a part of themselves that in many cases has been suppressed by careers, distance, time, or anything that keeps them from being in nature. Solitude and darkness is a component of wildness, wildness as a space for reflection. Solitude and darkness can be a fearful place, but when met with a mindset of potential, can be a place to soothe the soul and the very reason the national parks were created.

2016/17 Celestial Events

- November 4-5 Taurids Meteor Shower
- November 17-18 Leonids Meteor Shower
- December 13-14 Geminids Meteor Shower
- December 21 Winter Solstice
- December 21-22 Ursids Meteor Shower
- January 3-4 Quadrantids Meteor Shower
- March 20 Spring Equinox
- April 22-23 Lyrids Meteor Shower
- May 6-7 Eta Aquarids Meteor Shower
- June 21 Summer Solstice
- July 28-29 Delta Aquarids Meteor Shower
- August 12-13 Perseids Meteor Shower
- August 21 Total Solar Eclipse
- September 22 Fall Equinox
- October 7-8 Draconids Meteor Shower
- October 21-22 Orionids Meteor Shower
- November 4-5 Taurids Meteor Shower
- December 21 Winter Solstice
- December 21-22 Ursids Meteor

Keeping Wildlife Wild



Black Bears

The return of black bears to Big Bend is a success story for both bears and the park. Originally native to the Chisos Mountains, they disappeared from this area by the 1940s. Nearly fifty years later, they began returning from Mexico. Today, wildlife biologists estimate a black bear population of around 15–20 black bears.

A black bear's normal diet consists largely of nuts, fruits, sotol and yucca hearts, but

also includes small mammals, reptiles, and carrion. Bears normally avoid humans, but can become aggressive if they learn to take food from human sources.

The Chisos Basin Campground, High Chisos backpacking sites, and some primitive roadside campsites have bear proof storage lockers for caching edibles. Hard-sided vehicles are also suitable for storing edible items. Dumpsters throughout the park are bear proof as well.



Mountain Lions

Solitary and secretive, the mountain lion is Big Bend's top predator and is vital in maintaining the park's biological diversity. Mountain lions live throughout the park from mountain to desert, and biologists estimate a stable population of about two dozen lions.

Everywhere in Big Bend, you are in the territory of at least one lion. Within their territories, lions help balance herbivores

and vegetation. Research shows these large predators help keep both deer and javelina populations within the limits of their food resources.

Each year visitors report around 130 lion sightings in Big Bend National Park. Over half are seen along roadways, but encounters also occur along trails. Your best plan of action is to be aware of your surroundings and avoid hiking alone or at dusk and dawn. Also, watch your children closely; never let them run ahead of you.



Javelinas

For many visitors, seeing a javelina (pronounced hav-uh-LEE-nuh) is a new experience. Also known as collared peccaries, these animals are only found in the U.S. in Texas, New Mexico, and Arizona.

They are covered with black, bristly hairs and weigh between 40–60 lbs. They usually travel in groups called bands that consist of 10–25 individuals. Javelinas have a highly developed sense of smell, but poor vision.

Physically, they resemble pigs, but are not closely related. A javelina's diet includes prickly pear cactus, grasses, mesquite beans, piñon nuts, fruits, berries, and seeds.

Every year reports document campsites raided by javelinas. Although not normally aggressive, they can be when food is involved. Protect yourselves and the javelina by storing all food inside a vehicle or in the food storage lockers provided in the campgrounds. Do not leave coolers or food boxes unattended at any time.



Coyotes

Nothing in Big Bend speaks of wilderness more than the song of a coyote. Their various vocalizations from yips to howls let you know you are in the presence of an iconic figure. Their narrow-set, yellow eyes and long snout may seem intimidating, but in general, coyotes do not bother human beings.

Coyotes range over the entire United States. These highly adapted members of the

canine family are omnivores, dining on small mammals, reptiles, and insects. Coyotes will also eat berries and other vegetation when meat is unavailable. Carrion is an important food source in winter.

Coyotes are typically solitary, but will hunt in small groups when individuals converge in areas where food is plentiful. They will work cooperatively, either chasing an animal in relays to tire it or waiting in ambush. However, unlike wolves, they do not form lasting packs.



Rattlesnakes

Four species of rattlesnakes live in Big Bend National Park—the Western Diamondback, Black-tailed, Mojave, and Rock rattlesnakes.

This often-feared reptile is beneficial to the environment, eating mice, rats, and other small animals—many of which are pests or spread disease.

Perhaps surprising, rattlesnakes are not a top predator, sometimes becoming the meal

of roadrunners, skunks, coyotes, and even other snakes, such as the western coachwhip.

The buzz of a rattlesnake is an unmistakable sound that will stop you in your tracks. And this is a good thing, as rattlesnakes use this sound as a warning when they perceive a threat; continue toward them, and you risk provoking a self-defensive bite. A few bites have occurred in Big Bend. If bitten, contact a ranger promptly, as permanent damage can occur within 12 hours of a bite.



Wild Animal Encounters

For many people, the chance to see a bear or mountain lion in the natural environment is an amazing opportunity. However, one must always remember that we are entering their home, their territory. As such, we need to respect wildlife and know what to do if we encounter a wild predator:

- Do not run, but back away to get out of range of the perceived threat.
- If you feel threatened, try to look large, wave your arms, throw rocks or sticks.
- If attacked, fight back.
- Watch children closely and never let them run ahead or lag behind.
- Report bear or mountain lion sightings or encounters to a park ranger as soon as possible.

To help preserve healthy environments for both visitors and predators, please remember:

- Never leave food or trash unattended, as bears and other wildlife readily habituate.
- Never feed wildlife since no park animal is tame, and feeding leads to aggressive future behavior.
- Never approach wildlife and always keep a safe distance.

Please Help

At the Lodge

- Leave nothing outside your room, on the balcony, or on the porch.

In Developed Campgrounds

- Store food, beverages, toiletries, pet food, and dishes in the bear-proof storage locker provided at your site.
- Keep your campsite clean. Take trash and food scraps to a dumpster.
- Dump liquids in restroom utility sinks, not on the ground.
- Ice chests and coolers are not bear-proof; store them in your vehicle.

In the Backcountry

- Never leave packs or food unattended. Carry everything with you or store in a bear-proof locker.
- Avoid carrying odorous food and toiletries.
- Carry out all trash, including orange peels, cigarette butts, and left-over food and cooking grease.

Cyclists

- Use food storage lockers when provided.

Campgrounds



Chisos Basin

The Chisos Basin Campground is surrounded by tall, rocky cliffs and conveniently located near some of the park's most spectacular and popular trails.

Elevation: 5,401 ft.

Open: Year-round

Details: 60 campsites (no hook-ups). \$14 per night (\$7 per night with applicable pass). Flush toilets, running water, grills, picnic tables, and dump station. Trailers over 20' and RV's over 24' are not recommended due to narrow, winding road to the Basin and small campsites in this campground.

Reservable Campsites: 26 sites are reservable from November 15–May 31. Contact www.recreation.gov, or call 1-877-444-6777.

Group Camping: 7 group campsites are available by advance reservation only. To reserve a group campsite, contact www.recreation.gov or call 1-877-444-6777.

Cottonwood

Cottonwood Campground is a quiet, shady desert oasis located between the Castolon Historic District and the scenic Santa Elena Canyon.

Elevation: 2,169 ft.

Open: Year-round

Details: 24 campsites (no hook-ups). \$14 per night (\$7 per night with applicable pass). Pit toilets, running water, grills, picnic tables, no dump station, no generators allowed. A small picnic area is available across from campsite #23.

Reservable Campsites: There are no reservable campsites in the Cottonwood Campground. All individual campsites are on a first come, first-served basis.

Group Camping: One group campsite is available by advance reservation only. Group campsite is walk-in tent camping only. To reserve the group campsite, contact www.recreation.gov or call 1-877-444-6777.

Rio Grande Village

Set in a large grove of cottonwoods, the campground is adjacent to the Rio Grande. The RGV camp store and showers are within walking distance.

Elevation: 1,850 ft.

Open: Year-round

Details: 100 campsites (no hook-ups). \$14 per night (\$7 per night with applicable pass). Flush toilets, running water, picnic tables, grills, and some overhead shelters. Dump station nearby.

Reservable Campsites: 43 sites are reservable November 15–April 15. Contact www.recreation.gov or call 1-877-444-6777.

Group Camping: 4 group campsites are available by advance reservation only. Group campsites are walk-in tent camping only. Vehicle parking is restricted to an adjacent parking area. To reserve a group campsite, contact www.recreation.gov or call 1-877-444-6777.

Rio Grande Village RV

Open, paved lot with grassy, tree-lined edges. Adjacent to the camp store. This campground, operated by Forever Resorts, LLC, has the only full hook-ups in the park.

Elevation: 1,850 ft.

Open: Year-round

Details: 25 campsites. Concession-operated RV park with full hook-ups—water, electrical, and 3-inch sewer connection. \$36, double occupancy, with a \$3 additional per person charge. Periodically, a few sites may not be available for a 40' or longer RVs due to the size of the parking lot and orientation of the spaces.

Reservable Campsites: 20 sites are available by reservation, 5 are held for first come, first-served campers. Register at the Rio Grande Village store/service station, or call 1-877-386-4383, or 432-477-2293.

Developed Campgrounds at a Glance

| | Elevation (ft/meters) | Sites | Nightly Fee | Facilities | Registration | Comments |
|-----------------------|-----------------------|-------|--|--|------------------|---|
| Chisos Basin | 5,401/1,646 | 60 | \$14.00* | Flush toilets, dump station | Self-pay station | Surrounded by rocky cliffs; many hiking trails nearby. |
| Cottonwood | 2,169/661 | 24 | \$14.00* | Pit toilets, no generator use allowed | Self-pay station | In a cottonwood grove along the river. Grassy sites. |
| Rio Grande Village | 1,850/564 | 100 | \$14.00* | Flush toilets, dump station | Self-pay station | Along the river w/some shady sites. Laundry and showers nearby. |
| Rio Grande Village RV | 1,850/564 | 25 | \$36.00 and up | Full hook-ups | RGV Camp Store | Concession-operated; register at the RGV store. |
| | | | * \$7.00 with a lifetime interagency pass. | Observe posted campground quiet hours. | | |

Dirt Road Adventures

Dagger Flat Auto Trail

This seven-mile road (14 miles round-trip) winds eastward to a small valley where there is a forest of giant dagger yuccas.

The road is typically open to all vehicles, and excellent for bicycling. However, road may require high clearance as sandy areas or muddy conditions may seasonally exist. Check with a ranger for current road conditions.

Allow two hours for the drive. The speed limit on this narrow, winding road is 25 mph.



View Along Dagger Flat Auto Trail.

Old Ore Road

This backcountry road follows the historic route used in the early 1900s to transport ore from Mexican mines to the railroad station at Marathon.

This road has excellent vistas of the Chisos Mountains and Tornillo Creek. It passes through the foothills of the Deadhorse Mountains, including the cliffs of Alto Relex.

Ernst Tinaja, five miles from the southern end of the road, is a popular hiking destination.

Allow at least 3 hours to drive this 26 mile-long road. A high clearance vehicle and good tires are necessary.



Limestone Layers at Ernst Tinaja.

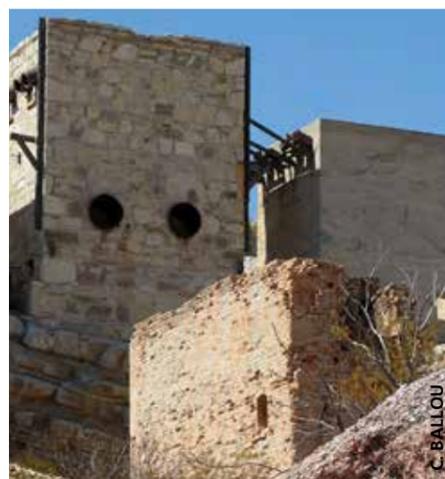
River Road

The River Road traverses the southern portion of Big Bend, providing a great opportunity to see the remote backcountry of this park.

Midway are the ruins of Mariscal Mine. This former mercury mine is a marvel to explore, as numerous structures are still standing.

Allow a full day (5–7 hours) to explore this 51 mile-long road. Backcountry campsites along the drive (permit required for camping) allow for extended exploration.

This road is for high clearance vehicles only and may become impassable following rain.



Historic Buildings at Mariscal Mine.

Backcountry Roads



| Road Name | Road Condition |
|-----------------|--|
| Dagger Flat | Suggested high clearance past Old Ore Road Junction |
| Glenn Springs | Narrow road; no RVs, trailers, or wide vehicles |
| North Rosillos | Deep ruts and sand |
| Juniper Canyon | High clearance vehicles only; rough, rocky, and slow |
| Old Maverick | Wash boarded sections; impassable after rains |
| Old Ore | High clearance vehicles only, 4WD recommended |
| Pine Canyon | High clearance vehicles only; rough, rocky, and slow |
| River Road East | High clearance vehicles only |
| River Road West | High clearance vehicles only, 4WD recommended |
| Black Gap | 4WD required; infrequently maintained |

Backcountry



B. FROHBIETER



M. HENCH

Primitive Roadside Campsites

For those who wish to camp in the backcountry without having to backpack, Big Bend offers a number of primitive campsites along roads, both in the desert and along the Rio Grande. A permit is required.

All roadside sites are along unpaved roads. While some centrally-located sites are accessible to most vehicles, a high clearance and/or 4-wheel drive vehicle is necessary to reach those along the primitive dirt roads.

Sites offer excellent views, privacy, an opportunity for solitude, and a cleared gravel

location to park your vehicle and set up a tent.

There are no amenities at any backcountry campsite; please plan to bring everything you need, including water, shade, chairs, and a trowel to bury human waste.

Please remember, campfires (all wood fires or ground fires) are strictly prohibited. Use cook stoves with caution.

Generators are not allowed in backcountry areas, and pets must be kept on a leash within the boundaries of the camp site.

Backcountry Planning

Backcountry Use Permit

A backcountry use permit is required for all backcountry camping, river use, and horse use.

- Permit must be obtained in person at a park visitor center during normal business hours.
- A permit may be obtained up to 24 hours in advance of the trip.
- Permit may be written for up to 14 consecutive nights in the backcountry.
- The permit fee is \$12 (\$6 with applicable pass) for overnight-use, free for day-use.

Backcountry Water

Every gallon removed from backcountry water sources is one less for the wildlife which depends on them.

- Each hiker should carry and drink a minimum of one gallon of water per person per day. Spigots for drinking water are available at all visitor centers.
- Springs and tinajas (rock depressions where water collects) are rare and unreliable—don't risk your life by depending on desert springs. Water should be filtered if used. Caching water is recommended for extended hiking trips in the desert.

Leave No Trace

Following the seven basic Leave No Trace principles helps protect our fragile desert environment:

- Plan ahead and prepare—a well-planned hike is more likely to be a safe hike, and without the need to rely on precious desert water.
- Travel and camp on durable surfaces—avoid walking on small plants or biological crusts.
- Dispose of waste properly—bury solid human waste at least six inches deep and 0.25 mile from springs. Pack out all waste paper and trash.
- Leave what you find—natural and cultural resources are protected within national parks. Collecting or disturbing features is prohibited.
- Minimize fire impacts—fires are only allowed on overnight river trips. A fire pan is required. Keep all heat sources away from combustible vegetation.
- Respect wildlife—all animals are wild, even if they appear to be tame. Never feed wildlife or leave scented items unattended.
- Be considerate of other visitors—keep noise levels to a minimum, as sounds can carry for long distances across the desert.



C. BALLOU

Backpacking

Big Bend National Park has over 200 miles of trails in the Chisos Mountains and desert terrain, with options for backpacking within these beautiful habitats.

Chisos Mountains

There are 41 campsites along Chisos Mountains trails, ranging from one to eight miles from the trailhead. These sites are designated to help reduce impact and damage to this delicate environment.

Sites include a cleared area for a tent as well as a bear-proof storage box, which must be used to store all scented items. A permit

for a specific site must be obtained prior to camping.

Zone Camping

Open zone camping permits are available for backpackers who wish to camp outside of the Chisos Mountains. The park is divided into a number of zones ranging from areas along popular trails to extremely isolated areas.

Camps must be set up at least 0.5 mile from roads, out of sight of roads, and at least 100 yards away from trails, historic structures, archaeological sites, dry creek beds, springs, or cliff edge.



J. JURADO

River Trips

The Rio Grande follows the southern boundary of Big Bend National Park for 118 miles. In this distance it has carved three major canyons—Santa Elena, Mariscal, and Boquillas.

Seeing the park's canyons from the middle of the Rio Grande is both fascinating and gratifying. There are many possibilities, from half-day floats to extended seven-day excursions.

Canoes, kayaks, and rafts are allowed in river canyons. You may bring your own equipment, or you can hire a guide service.

Local outfitters (see page 12 for phone numbers) provide guide service, equipment rental, and up-to-date river information and conditions.

The deepest channel of the Rio Grande is the international border between the United States and Mexico. Passports are not currently required for river trips, but stepping onto the Mexican bank of the river, then returning to the U.S., constitutes an illegal border crossing. U.S. Border Patrol allows for exceptions to be made under emergency situations only, i.e., scouting, portaging, or lining.



C. BALLOU

Horseback Riding

Visitors are welcome to bring and use horses in the park. A stock-use permit is required (free for day-use), and copies of vaccination documents must be with you.

While horses are not allowed on paved roads or road shoulders, all gravel roads are open to horses. Cross-country travel is permitted in the park, except in the Chisos Mountains where horse use is limited to the Laguna Meadow, Southwest Rim, and Blue Creek trails. Horses are not permitted in picnic areas or on interpretive trails.

Grazing within the park is not permitted; you must bring your own feed. Stock may be watered in the Rio Grande and at springs not used for domestic water supply. However, be prepared to haul water for you and your stock, as desert springs are unreliable. All horse manure and feed remnants must be removed from the park.

Horses are allowed at several of the park's primitive roadside campsites. Hannold Draw campsite, located 4.8 miles north of Panther Junction, has a corral large enough for 8 horses. If you plan to camp with horses in the park, you may reserve this campsite up to 10 weeks in advance. For reservations, call 432-477-1158.

Services Inside the Park

Emergency Call 911

National Park Service

General Information 432-477-2251

Big Bend Natural History Association

Booksales & Seminars 432-477-2236

Visitor Centers

Panther Junction (Hdqtrs) 432-477-1158
 Chisos Basin 432-477-2264
 Castolon 432-477-2666
 Persimmon Gap 432-477-2393
 Rio Grande Village 432-477-2271

U.S. Post Office

Panther Junction 432-477-2238

Lodging/Restaurant

Chisos Mountains Lodge 432-477-2291
 Reservations 877-386-4383

Gas Stations

Panther Junction 432-477-2294
 Rio Grande Village 432-477-2293

Camper Stores

Rio Grande Village 432-477-2293
 Chisos Basin 432-477-2291
 Castolon 432-477-2222

Services Outside the Park

This listing of local services is a courtesy to our visitors and implies no endorsement by the National Park Service or Big Bend National Park.

Lodging

Lajitas
 Lajitas Resort 877-525-4827

Marathon

Gage Hotel 432-386-4205
 Marathon Motel 432-386-4241
 Eve's Garden 432-386-4165

Study Butte/Terlingua area

Big Bend Casitas 800-839-7238
 Big Bend Resorts 800-848-2363
 Easter Egg Valley Motel 432-371-2254
 El Dorado Motel 432-371-2111
 Longhorn Ranch Hotel 432-371-2541
 Ten Bits Ranch 866-371-3110
 Terlingua House 325-473-4400

Camping

Big Bend Resorts 800-848-2363
 Big Bend Ranch State Park 432-424-3327
 Big Bend Travel Park 432-371-2250
 B.J.'s RV Park 432-371-2259
 Heath Canyon Ranch 432-376-2235
 Longhorn Ranch 432-371-2541
 Stillwell's Trailer Camp 432-376-2244
 Study Butte RV Park 432-371-2468

Convenience Stores/Gasoline

Big Bend Resorts 800-848-2363
 Cottonwood General Store 432-371-3315
 Stillwell Store & Station 432-376-2244

Medical Services

Terlingua Fire and EMS 911
 Big Bend Medical Center 432-837-3447

Banks

Quicksilver Bank/ATM 432-371-2211

Local Outfitters

Angell Expeditions 432-299-3713
 Big Bend Overland Tours 800-848-2363
 Big Bend River Tours 800-545-4240
 Desert Sports 888-989-6900
 Far Flung Outdoor Center 800-839-7238
 Rio Aviation 432-557-9477

Horseback Riding

Big Bend Stables 800-887-4331
 Lajitas Livery 432-424-3238

Information and Services

Accessibility

All visitor centers are accessible, as are the Chisos Mountains Lodge restaurant and some motel rooms and campsites. The Window View Trail is paved and fairly level.

Camp Stores & ATMs

Forever Resorts, LLC, operates stores at Castolon, Chisos Basin, and Rio Grande Village. ATMs are available at the Chisos Basin store, Rio Grande Village store and Panther Junction service station.

Camping Limits

Visitors can stay in the park up to 14 consecutive nights, whether in a front or backcountry site, with a limit of 28 total nights in the park in a calendar year. Campers can occupy a specific site up to 14 total nights in a year. Between February 1 and April 15, visitors are limited to 14 total nights in the park.

Entrance Fees

- Single private non-commercial vehicle \$25—valid for 7 days
- Single motorcycle \$20—valid for 7 days
- Single person entry on foot or bicycle \$12 per person—valid for 7 days
- Big Bend Annual Pass \$50—valid for one year from month of purchase
- Interagency Annual Pass \$80—valid for one year from month of purchase

All other valid passes will be accepted until expired (Senior Pass, Access Pass, etc.). For commercial rates, please consult our website: www.nps.gov/bibe. Additional permits may be required.

Fires

Ground fires and wood fires are strictly prohibited throughout the park. Only gas stoves and charcoal contained in a grill may be used. Use caution with any heat source.

Gas Stations

Gasoline and diesel are available at Panther Junction and Rio Grande Village service stations. Panther Junction has propane exchange. Rio Grande Village offers propane refilling.

Junior Ranger

Kids earn a badge and have fun learning about the park by becoming a Junior Ranger. Booklets are available online and at park visitor centers.



Lodging

The Chisos Mountains Lodge, located in the Chisos Basin, includes 72 rooms, gift shop, dining room and camp store. For more information call 432-477-2291 or 877-386-4383.

Phones

Public pay phones are located outside the Chisos Mountains Lodge and Rio Grande Village Store.

Post Office

A full-service post office is located at the Panther Junction Headquarters, open M–F, 8am–11:30am and 12:30pm–3:00pm. A mail drop is also available at the Chisos Basin Store.

Recycling

Recycling receptacles are provided in campgrounds and near stores and visitor centers. Every bit of material recycled means one less piece buried in the park landfill. Please recycle!

Showers and Laundry

Pay showers and laundry facilities are available at the Rio Grande Village Store and have 24-hour access. Out-of-park facilities are available in Study Butte.

Visitor Centers

Panther Junction, Chisos Basin, and Persimmon Gap Visitor Centers are open year-round. Rio Grande Village and Castolon Visitor Centers are open November–April.

Wifi/Internet

Free wireless internet is available at the Panther Junction and Chisos Basin Visitor Centers, the Chisos Mountains Lodge and the Rio Grande Village Camp Store. There are no public computer terminals.

Kennels

- Alpine Veterinary Clinic 432-837-3888
- Alpine Small Animal Clinic

Park Partners

Big Bend Natural History Association

The Big Bend Natural History Association (BBNHA) was established in 1956 as a private, non-profit organization. The Association's goal is to educate the public and increase understanding and appreciation of the Big Bend area and what it represents in terms of our historical and natural heritage. BBNHA champions the mission of the National Park Service in interpreting the scenic, scientific, and historic values of Big Bend, and encourages research related to those values.

The Association conducts seminars, and publishes, prints, or otherwise provides books, maps, and interpretive materials on the Big Bend region. Proceeds fund exhibits, films, interpretive programs, seminars, museum activities, and research.



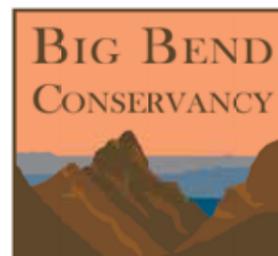
www.bigbendbookstore.org

Big Bend Conservancy

The Big Bend Conservancy (BBC) is a private, non-profit organization whose mission is to support, promote, and raise funds for Big Bend National Park in partnership with the National Park Service.

The BBC has funded a range of critical projects, including Rio Grande Village wetlands restoration, the purchase of video camera and editing equipment, retrofit of night sky lighting, support for construction of the Boquillas crossing station, and the Park orientation film. The BBC's latest accomplishment is the addition of the Park's \$1.4 million Fossil Discovery Exhibit completed during the BBC's 20th anniversary year.

Visit www.bigbendconservancy.org to learn how you can support Big Bend, including how to get your own Big Bend National Park license plate.



PO Box 200
 Big Bend National Park, Texas 79834
 432-477-2242
www.bigbendfriends.org

Volunteers in the Park

Approximately 260 volunteers contribute 50,000 hours of work every year in Big Bend National Park! Whether staffing visitor centers and campgrounds or patrolling backcountry trails, volunteers protect valuable resources and help visitors learn about, and more safely enjoy, Big Bend National Park.

While you might not notice volunteer contributions at first, look around and you'll be surprised how many volunteers you see. It is primarily volunteers who provide visitor information at campgrounds, and at four of the five visitor centers in the park. They keep the campsites, backcountry roads, and trails in pristine condition, assist with maintenance projects, and are considered the eyes and ears of the park. Please thank them for their services if you have the opportunity. For more information, contact the volunteer coordinator at 432-477-1106.



www.nps.gov/volunteer