



# Massai Point Trail

CHIRICAHUA NATIONAL MONUMENT  
ARIZONA

15 CENTS IF YOU TAKE THIS BOOKLET HOME

## NATIONAL PARKS AND MONUMENTS

The National Park Service was established as an agency of the U. S. Department of the Interior in 1916, to preserve the marvels of nature's handiwork in just such areas as Chiricahua National Monument. Yellowstone National Park, created in 1872, was the first national park in the world to be dedicated to the principle of preservation for the enjoyment and inspiration of all the people of this and future generations. This continues to be the guiding principle of the National Park Service today, which administers over 285 areas set aside for their scenic, scientific, historic and archeologic values. The National Parks and Monuments have been called the "crown jewels of America" and they are yours to protect and treasure for Americans of the future.

To preserve the beauty that you see at Chiricahua, it has been necessary to prohibit hunting, grazing, mining, wood-cutting and other such destructive activities of man. We even ask that you do not pick the flowers, so that they may remain for others to enjoy. It is hoped that our visitors will heed the thought expressed in the saying, "Let no one say, and to your shame, that all was beauty here before you came."

*Please use trashcans —  
don't be a litterbug.*

**AVOID RATTLESNAKES.  
THEY APPEAR MAINLY IN WARM WEATHER.**

**HELP PREVENT FOREST FIRES**

COVER: The cover photo is a scene near the China Boy parking area, on the scenic drive through Bonita Canyon.

## INTRODUCTION

The trail, which starts below the registration desk, will take you to an observation point overlooking the Wonderland of Rocks and return you, by a different route, to the parking area. It is an easy and interesting walk, one quarter mile long, which may be made in 20 to 30 minutes.

Along the trail you will find numbered stakes which correspond to the numbered paragraphs in this guide booklet. Many of the questions you may have about Chiricahua will be answered by reading this booklet as you walk along the trail.

*Here is a good place for a picture, so don't forget to take your camera with you.*

## Massai Point Trail

**1** POINTLEAF MANZANITA (*Arctostaphylos pungens*). These small shrubs have extremely hard, brittle wood, and sometimes form impenetrable thickets. The smooth, mahogany-colored bark is an identifying characteristic of manzanita.

Although only goats seem able to stand a steady diet of manzanita foliage, the fruits are relished by birds, bears, and other animals. The fruit resembles a miniature apple (whence the name manzanita - Spanish for "little apple"), and can be made into a delicious jelly.

**2** SACAUISTA, "BEARGRASS" (*Nolina microcarpa*). This plant is not relished by bears, nor is it a grass! In May or June the small white flowers, borne in graceful clusters on a crooked flower stalk, identify it as a member of the lily family.

Although the foliage, browsed only in times of drought, may be poisonous to sheep or goats, the tender flower shoots were eaten raw or boiled by Apaches, who used the tough fibers from the leaves for weaving baskets and mats.

**3** SILVERLEAF OAK (*Quercus hypoleucoides*). Seven kinds of oak are found in Chiricahua National Monument, most of them evergreen, like this one. Turn one of the leaves over and notice the silvery undersurface which gives the plant its name. Even though the leaves of most oaks native to this region are very different from those of the larger



*Mexican pinyon on 2-inch squares.*  
*Note small cones and needles*  
*in three's*

les on this tree are usually three to a bundle, whereas the pinyon has them in two's.

Mature trees under favorable conditions may reach a height of 50 feet, but are usually much smaller. They are very slow growing and may reach the surprising age of 250 to 350 years. The seeds (or nuts) borne under the cone scales are hard-shelled and have a delicious flavor.

They form an important part of the diet of squirrels, other rodents, and birds, and they have long been used for food by the Indians. The nuts of the common pinyon have for years been an article of commerce, and provide an important source of revenue for Indians of northern Arizona

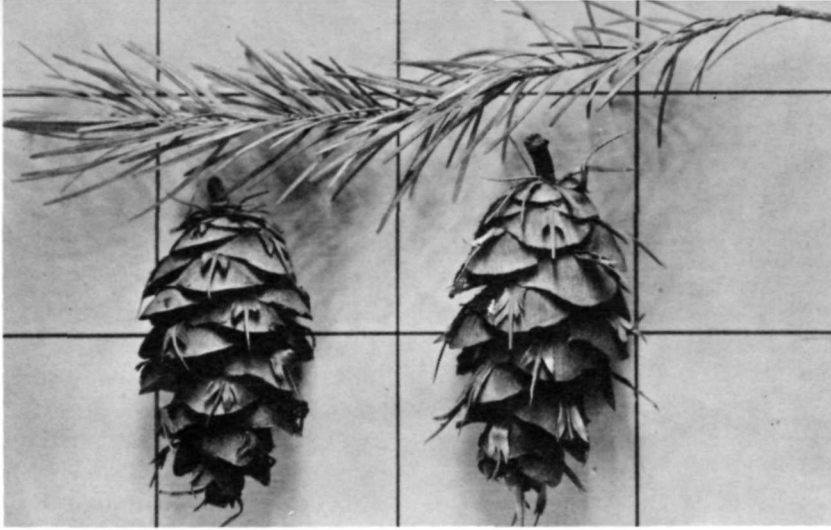
*Arizona cypress on 2-inch squares.* *Note large, berry-like seed bearing cones (female) and in lower left the small pollen-producing cones (male)*



trees of the East and Midwest, the acorns are quite similar, and help identify these shrubs as oaks.

**4**

**MEXICAN PINYON**  
*(Pinus cembroides)*. Of the five kinds of pines in Chiricahua, this species is likely to be confused only with the pinyon, *Pinus edulis*, which is not common in this area. Notice that the need-



*Douglas-fir on 2-inch squares. Note three-pointed bracts on cone scales*

and New Mexico. Pitch of the pinyon has been used to waterproof baskets and as a cement in setting the turquoise in jewelry.

**5** ARIZONA CYPRESS (*Cupressus arizonica*). On moist, protected, north slopes and in cool canyons the Arizona cypress may reach a height of 80 to 90 feet and have a trunk up to 5 feet in diameter. The trees on these slopes around Massai Point are growing under unfavorable conditions, and never reach maximum size. Luxuriant stands of Arizona cypress are seen along the road in Bonita Canyon, and particularly on the Echo Canyon trail in Echo Park. Size and shape of the cones distinguish the smaller specimens from alligator juniper, which they resemble.

This beautiful Southwestern tree is frequently cultivated in this country and in Europe.

**6** DOUGLAS-FIR (*Pseudotsuga menziesii*). Up-hill from the post are two trees. The near one is a Chihuahua pine, and the one shaped like a Christmas tree behind it is Douglas-fir.

Like the last tree, this one is growing under unfavorable conditions. Found throughout the West, this handsome and important lumber tree reaches a maximum height of 300 feet in Oregon and Washington; even here, near the southern limit of its range, it may become the largest tree in the area. From the overlook farther along this trail, you may see a venerable giant growing in a cool and shady ravine across



Young Parry agave or  
"century plant"

Rhyolite Canyon. While in a general way altitude determines types of plant growth, slope, soil conditions, moisture, air temperature, and amount of shade are even more important.

The Douglas-fir is not a true fir. An easy way to identify it is by the three-pointed, papery bracts which are such an obvious feature of the cones.

**7** NETLEAF OAK (*Quercus reticulata*). This broadleaved species is usually a shrub, but in cool canyons may reach tree size. Turn one of the leaves over and note the net-like arrangement of veins on the undersurface, which identifies this oak. The acorns of the native oaks were roasted for food by the Indians, and are relished by many birds, squirrels, and other animals. Their fattening effect, especially for swine, is well known.

**8** PARRY AGAVE (*Agave parryi*). The agaves, commonly known as "century plants," provided Southwestern Indians with food, fibers for ropes, needles and thread, and alcoholic beverages. The plants are among those now protected by law against destruction, mutilation or removal in Arizona and New Mexico.

In spite of the common name "century plants" bloom when 10 to 30 years old. This species, blooming in June or July, puts forth showy red buds turning to yellow flowers. Having used up food which it has stored in its fleshy leaves, the plant then dies. The branched flower stalks grow so rapidly that their daily growth can almost be seen, and in one native species may reach the surprising height of 26 feet. This is one case where growing pains are serious and always fatal.

**9** LICHENS (pronounced LY-kehns). The patches of green, orange, and brown color on the rocks are tiny primitive plants called lichens. Each lichen is composed of two kinds of plants, a fungus and an alga, living together to the benefit of each. The fungus absorbs moisture and the green alga takes the water and carbon dioxide, and through photosynthesis turns out food essential to both. The plant, a per-

fect example of a working partnership in nature, is an important agent in the slow process of changing solid rock to soil. A weak acid produced by the lichen slowly pits and eats away the rock. Gradually these holes are filled with soil in which grow mosses and grasses. Finally, herbs, shrubs, and trees gain a foothold and complete the process. This work is very slow when considered for a single rock, but if you look at the lichens on the rocks that extend for 3 miles to the west, you can realize the soil-building capacity of these primitive plants.

**10** DEAD SNAGS. Here, as in all National Parks and Monuments, may be seen a typical bit of the natural scene, unspoiled by man. Only where it is necessary to build roads, trails, or safety features is the natural landscape altered. If forest land were thinned by lumbering or dead trees removed for firewood as is sometimes suggested, a chain of events could begin which would permanently destroy the original character of the area. In the dead snags birds may nest, in decaying wood live insect larvae; upon these, small animals and birds depend for food. Thus an intricate structure of plant and animal life is built on countless small supports; remove but one and the structure collapses. So man, through many seemingly insignificant acts, changes and destroys his environment.

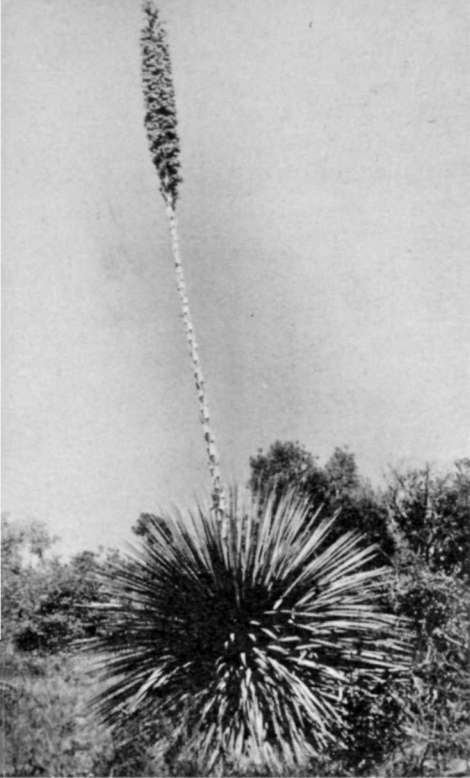
Generations from now your descendants will be able to find in the National Parks and Monuments, and perhaps in them alone, unaltered remnants of this country as it existed before receiving the full impact of modern civilization.

*(This is another favorite spot for a picture)*

**11** TOUMEY OAK (*Quercus toumeyii*). Shrubby oaks which are such common members of the chaparral on sunny hillsides of Arizona play an important part in preventing soil erosion, for their roots anchor the earth against the force of rain. Small animals find shelter in the thickets, and oak leaves are browsed by deer.

This species may be distinguished by its unusually small, yellowish-green leaves, which are shiny on the upper surface.

**12** ALLIGATOR JUNIPER (*Juniperus deppeana*). Notice that the bark on this tree is broken into rectangular plates and bears a resemblance to the skin of an alligator. This is the largest species of juniper in Arizona and occasionally



*Sotol in bloom*

may reach a height of 65 feet. Only one other species of juniper is found in Chiricahua.

Juniper berries are relished by birds and other wild creatures, and formerly were used as food by Indians of Arizona. Actually, the berries are true cones, formed by the growing together of cone scales. The tree is resistant to drought, slow growing, and reaches an age of 500 to 800 years or more.

**13** ROUTE OF A ROOT. Notice here how the root of a Mexican pinyon many years ago followed a crack in the sloping rocks, seeking moisture and nourishment in a dry, inhospitable location. The tiniest cracks and their accumulated soil pockets offer root hold, food, and drink for the far-ranging rootlets. That these foraging

root tips were successful in their quest is proved here, by the fact this pinyon *did* live and grow.

**14** CHIHUAHUA PINE (*Pinus leiophylla*). This is the pine tree at the base of the large rock. The Chihuahua (chee-WAH-wah) pine is much more common in northern Mexico than in the southwestern United States. It is a rather small species of pine and is characteristic of poor, dry sites.

**15** WHEELER SOTOL (*Dasyilirion wheeleri*). The thin, ribbon-like leaves with conspicuous teeth along the sides distinguish this plant from sacahuista, yucca, or agave, which it superficially resembles. All these plants are seen along the trail. Note the sacahuista, only 30" to the left.

The base of the plant is somewhat cabbage-like and, after the leaves are removed, may be split open and fed to livestock as an emergency feed. The sap of these plants is high in sugar content and in northern Mexico it is gathered and fermented to produce a potent beverage known as sotol.

**16** LOOKOUT POINT. Would you like to sit and rest a bit? To your right here, up the steps at Lookout Point you will



find benches and an excellent view of the "Wonderland of Rocks."

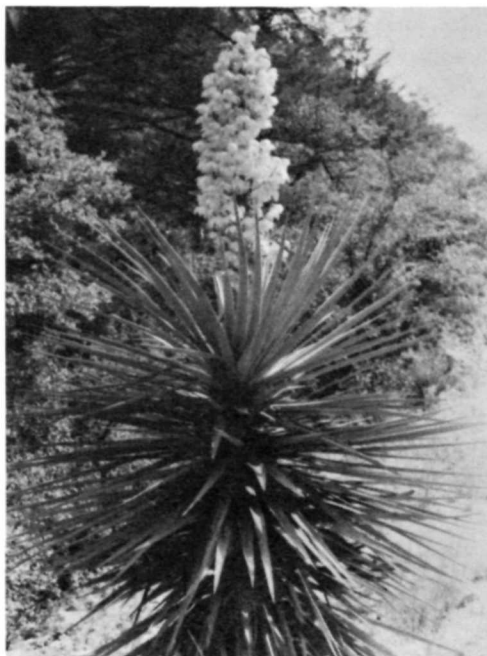
The geological story of Chiricahua goes back into the ages and much remains to be done before all of its chapters are known. Geologists believe that between 10 and 25 million years ago this region, which was at that time a level plain, was shaken by a series of violent and explosive volcanic eruptions.

Glowing clouds of gas, carrying tremendous quantities of white-hot ash and volcanic sand, spread rapidly from the mouth of the volcano. As each cloud cooled, the solid particles were bonded together to form great thicknesses of solid rock. These are the rock formations containing the spires, pinnacles and balanced rocks which you see before you.

Many successive eruptions over a long period of time deposited more than 2,000 feet of volcanic material. This great thickness of lava can be roughly divided into three main periods of activity: (1) The earliest is represented by a 700 foot section containing the ash beds and fragmented coarse lava to be seen near the museum and Monument Headquarters. (2) About half way up the road to Massai Point you come into the next main series of lavas, which is

*Wonderland of Rocks with Sulphur Springs in the distance as seen from scenic overlook*





*Closeup of Schott's yucca showing the emerging asparagus-like flower stalk*

*Schott's yucca in bloom*

about 900 feet thick and consists of more or less light-colored massive rock known as rhyolite. The pinnacles, balanced rocks and columns seen below have been carved in this second layer of lava by the various forces of erosion. This layer is sometimes called the scenic lava flow. (3) During the last period of volcanic activity, there was deposited a third set of lavas which once covered this area to a thickness of about 500 feet above you. Following this occurred the great uplift which tilted these rocks toward the west.

During the millions of years that have elapsed since this occurred the latest lavas have been entirely worn away except for the patch making up Sugar Loaf Mountain, which you see to your right. See if you can locate the first two layers of lava as you drive down the road to headquarters.

*The viewfinder which you see here will help you locate several points of interest and learn their names.*

You are about two-thirds of the way along the trail, and there are several things of interest yet to see, so when-

ever you're ready, drop back to the trail and continue on.

**17** SCHOTTS YUCCA, "MOUNTAIN YUCCA" (*Yucca schottii*). The plant with the sharp-pointed leaves has long been important to the Indians of the Southwest. The buds, flowers, and young flower stalks may be eaten raw or boiled, and the fibers from the leaves furnish material for rope, mats, sandals, baskets and cloth. When properly prepared, the roots may be used as a substitute for soap.

Yuccas present an interesting example of the dependence of plants upon animals and vice versa. But for the presence of a particular kind of small moth there would be no yuccas, for only through the activities of this little insect are the flowers pollinated. Of course, the moth doesn't provide this service for nothing, for in return it lays its eggs in the ovary of the flower. Upon hatching, the larvae find themselves surrounded by food in the form of seeds which developed because the moth pollenized the flower when she laid her eggs. The larvae eat only a few seeds and the rest are left to produce more yuccas.

**18** BALANCED ROCK. To your right you will see a good example of a balanced rock. Larger and more spectacular balanced rocks are found in the Heart of Rocks section about  $3\frac{1}{2}$  miles by trail from Massai Point.

These forms have been made by the work of erosion on pillars of volcanic material. As the lava cooled and shrank, it cracked in such a way as to produce vertical columns of rock. Water, frost, lichens and other forms of erosion have worn the columns away enough to produce the unusual rock shapes found in Chiricahua. At some places in the columns, the rock was softer than the surrounding material, or cracks had formed. At such places the erosion



*Balanced rock seen at Stake  
Number 18*

was more rapid and a balanced rock such as you see here was the result. Eventually the softer material forming the pedestal of the balanced rock will be worn away and the rock will fall.

**19** WELDED RHYOLITE-TUFF. Almost all of the unusual rock formations are composed of this rock, called welded rhyolite-tuff or, if you prefer jaw-breaking names, *ignimbrite*. This rock is the result of eruptions of white-hot ashes which in cooling and by the pressure of overlying deposits, have been compacted into one solid mass of rock. Welded rhyolite-tuff, such as this, results only from a highly explosive and violent type of volcanic eruption similar to the eruption of Mount Pelee in the West Indies or the volcanic activity in the Valley of Ten Thousand Smokes in Alaska.

**20** NAMING OF MASSAI POINT. You may have wondered how Massai Point received its name. The answer brings in some of the interesting history of the area.

At the end of the Apache campaigns in 1886, the band of Geronimo's warriors was captured and sent by train to Florida, where they were to be interned. The Indians were counted, but were not separated as to men, women and children, and so when a baby was born, this provided an opportunity for one prisoner to escape without changing the count of individuals. As a result, a warrior known as Big Foot Massai dropped off the train and made his way back to southeastern Arizona from somewhere just east of the Mississippi River.

Sometime later he and his wife were making their way through this area after returning from a foray in Mexico. On this trip he killed a cow and stole a horse from the old Stafford homestead which was located near the present Visitor Center. Massai was pursued to this point and over the mountain. It is said that this was the first time the early settlers found that it was possible to cross the mountains by horseback through this place. Since then this spot has been known as Massai Point.

*This stake marks the end of the Massai Point Trail. Please leave this booklet in the box, or if you wish you may purchase it by dropping fifteen cents in the coin slot.*



*Looking north from Massai Point toward Cochise Head.*

*Looking south from Massai Point overlook toward Heart-of-Rocks. Notice the Totem Pole (arrow).*





*Hikers on the Heart-of-Rocks loop trail see more of the major named rock formations, such as Pinnacle Balanced Rock.*

## CONSERVATION—YOU CAN HELP

If you are interested in the work of the National Park Service, and in the cause of conservation in general, you can give active expression of this interest, and lend support by aligning yourself with one of the numerous conservation organizations which act as spokesmen for those who wish our scenic and historic heritage to be kept unimpaired.

Names and addresses of conservation organizations may be obtained from the ranger.

## OTHER NATIONAL PARK SERVICE AREAS IN SOUTHEASTERN ARIZONA

### Natural History:

Saguaro National Monument - - - - near Tucson

### History:

Tumacacori National Monument - - near Nogales

### History and Natural History:

Coronado National Memorial - - - - - near Fort  
Huachuca

### Archeology:

Casa Grande National Monument - - near Coolidge

## HELP PREVENT FOREST FIRES

**This booklet is published in cooperation with the National Park Service  
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*A non-profit publishing and distributing organization  
supporting historical, scientific and educational  
activities of the National Park Service.*

We recommend the following items for  
additional information on the Southwest:

- THE NATURAL HISTORY STORY OF CHIRICAHUA NATIONAL MONUMENT.** Jackson. Describes typical plants and animals of the area, the life zones, climate, geology, and briefs the human history. 84 pp., 50 illustrations, 2 maps, color cover, paper .....\$1.00
- 100 DESERT WILDFLOWERS IN NATURAL COLOR.** Dodge. Descriptions and full-color portraits of 100 of the most interesting desert wildflowers. Photographic hints. 64 pp., full-color cover, paper .....\$2.00
- 100 ROADSIDE WILDFLOWERS OF SOUTHWEST UPLANDS IN NATURAL COLOR.** Dodge. Companion book to author's 100 Desert Wildflowers in Natural Color, but for higher elevation flowers. 64 pages and full-color cover, paper .....\$2.00
- FLOWERS OF THE SOUTHWEST MESAS.** Patraw and Janish. Companion volume to the Desert flowers booklet, but covering the plants of the plateau country of the Southwest. 112 pp., color cover, paper .....\$1.50
- FLOWERS OF THE SOUTHWEST MOUNTAINS.** Arnberger and Janish. Descriptions and illustrations of plants and trees of the southern Rocky Mountains and other Southwestern ranges above 7,000 feet elevation. 112 pp., color cover, paper .....\$1.50
- POISONOUS DWELLERS OF THE DESERT.** Dodge. Invaluable handbook for any person living in the desert. Tells the facts about dangerous insects, snakes, etc., giving treatment for bites and stings and dispels myths about harmless creatures mistakenly believed poisonous. 48 pp. ....\$ .75
- MAMMALS OF SOUTHWEST MOUNTAINS AND MESAS.** Olin and Bierly. Companion volume to Mammals of Southwest Deserts. Fully Illustrated in exquisitely done line and scratchboard drawings, and written in Olin's masterfully lucid style. Gives description, ranges, and life habits of the better known Southwestern mammals of the uplands. Color cover, paper .....\$2.00  
Cloth .....\$3.25
- YOUR NATIONAL PARK SYSTEM IN THE SOUTHWEST, IN WORDS AND COLOR.** Jackson. 500 word articles on each National Park Service area in the huge Southwest Region, with full-color photograph for 57 of the 59 areas listed. Most authoritative treatment possible, by former career N.P.S. employee, with every text checked for accuracy by each area's superintendent. Also contains "How to Get There" appendix. 68 pages, 61 full-color illustrations, color cover, paper .....\$2.50



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