



**FRIENDS OF CITY OF ROCKS NEWSLETTER**  
**(Vol. 4, No. 2, Aug. 2020)**  
**MISSION STATEMENT**

The purpose of the Friends of City of Rocks State Park, Inc. (website: <http://www.friendsofcityofrocks.org>; e-mail address: [friends@friendsofcityofrocks.org](mailto:friends@friendsofcityofrocks.org)) is to help support the New Mexico State Parks in the enrichment of the park area. Specifically, the Friends aim to enhance, preserve and promote park use, to participate in nature as responsible stewards of the earth, to create an awareness of the wonder, fragility and importance of the park, to develop and improve existing education/interpretive programs, to develop and improve public awareness of the park, and to encourage public participation and/or membership in the Friends group.

**BECOME A MEMBER OF THE FRIENDS!**

Interested in helping out City of Rocks State Park? Consider joining the Friends. Typical Friends activities include highway cleanup, cutting and splitting firewood for sale to park campers, operation of a gift shop in the park Visitor Center, fund-raising, etc. To join, a) complete and send in the membership application form at the end of this newsletter, OR b) download, complete and submit a membership application from the Friends website (see above). **NOTE: If you are already a member of the Friends, it is time to renew your membership! You can do so using the same form mentioned above.**

**CONTENTS**

**A message from park manager Gabriel (“Gabe”) Medrano 2**  
**The Desert Box Turtle by Tim Geddes 3**  
**National Public Observatory Project at City of Rocks by Steve Gilkison 4**  
**City of Rocks Geology. Bureau of Geology and Mineral Resources 5**  
**Reflections on a plant inventory of City of Rocks by William (“Bill”) Norris 11**  
**Membership Application 20**

**A MESSAGE FROM PARK MANAGER  
GABRIEL (“GABE”) MEDRANO**

**Hello Friends of City of Rocks. I just wanted to let you know how City of Rocks has been affected by the Covid-19 Pandemic. On March 13 State Parks was given the order by the Governor’s office that all State Park would be closed to camping starting March 14. On the morning of March 14, a volunteer and I went around a full park to let our campers now that they had until 2pm to leave the park and we would only be open to day use visitors. I was also informed that we had to shut down the comfort station, visitor center and all the park only leave the front parking lot of the visitor center open. On March 16 we were given word that all parks would be shut down indefinitely.**

**During the complete shutdown thankfully, we were able to keep all volunteers that were currently in the park working. We were able to work on a variety of projects that were on hold until the parks slow season (June, July, August). One project was to deep clean the comfort station and paint it. Another one was to fix all erosion on the main road and in campsites. We also replaced the welcome sign and sign at the Botanical Garden. A big project that had been on hold for awhile was to put around a quarter mile of new fence near the parks South windmill and to get the**

**windmill running again. We were able to complete all these projects along with smaller projects and mandatory daily tasks.**

**During the shutdown the park did not make any revenue or have any visitors. We did start to see more wildlife in the park. This included bobcat, Mule deer, elk, owls, and of course rabbits. These animals have always been in the park but were more visible. I believe they may have been in some sort of shock not seeing visitors. The shutdown also made for long days as we did not interact with our normal visitors. This has also affected the Friends Group as no merchandise can be sold.**

**On June 15 we were able to open the park for day use only from 7am-4pm daily. Then on July 6<sup>th</sup> the Governor office gave the order to make all state parks open for New Mexico residents only. Currently, we only have four vault toilets open for use and a total of 16 sites open. All trails are open as well. We do have to post one person at the gate to check ID’s and let visitors in. Hopefully soon we may be able to open again but only when it is safe to do so. Stay safe my friends and I hope to see you in the park.**

## THE DESERT BOX TURTLE

by Tim Geddes

Turtles are unique. No other animal is like a turtle because turtles have managed to get their limb girdles inside the rib cage. The ancestry of turtles is lost in deep time and turtle fossils go back to the Triassic Period 210 million years ago. Over evolutionary time the ribs expanded into a bony shell. The bone is overlaid with a layer of laminae like a thick coat of varnish. While the turtle is young annual growth rings can give some idea of how old the turtle is but the rings become obscured with age. Turtle skulls are sloid like the stem reptiles of the Permian. The jaws have no teeth but a horny sheath covers the jaws to provide a sharp cutting edge. Turtles are in the Order Testudines of the Class Reptilia and are characterized by scales, an ectothermic metabolism, and lay shelled eggs on land like most snakes, lizards, and crocodilians. There are fourteen families and 316 species of turtles in the world.



Snapping turtle skull. Photo by Tim Geddes.

The species and geographic race of the box turtle found at the City of Rocks is "*Terrapene ornata luteola*". This turtle ranges from southern New Mexico to southeastern Arizona and northern Mexico. The shell is covered with yellowish markings that may fade with age. The record age of the eastern box turtle is 138 years according to J. A. Oliver in "The Natural History of North American Amphibians and Reptiles". The desert box turtle may live as long.



Desert box turtle.

<https://arizonadailyindependent.com/2015/03/29/desert-box-turtles/>

Mating occurs during the warm months of the year and females lay from two to eight eggs. The eggs hatch after 52 to 120 days of incubation and the young are about one inch long. Sex is determined by chromosomal and temperature factors. Box turtles display sexual dimorphism. The plastron, or lower shell is concave in males to assist in mounting the female. The eyes of males are often red while females usually have yellowish eyes. Males have a single copulatory organ in the base of the tail.

Desert box turtles are well adapted to life in a hot and dry environment. They can utilize metabolic water from the food they eat. The turtles feed on insects and other invertebrates and much depends on what is available. The turtles hibernate from October to March and can aestivate in hot weather. Adult box turtles have few enemies besides automobiles but ravens, coyotes, foxes, and other predators can prey on the young. Many turtles are taken for the pet trade.

Turtles have been around for millions of years and could endure for millions more. Maybe there is something to be said for life in the slow lane.

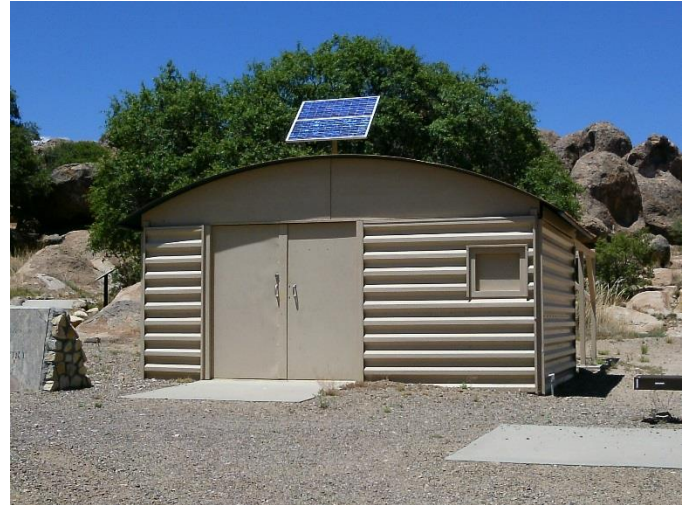


Desert box turtle.

[https://en.wikipedia.org/wiki/Desert\\_box\\_turtle](https://en.wikipedia.org/wiki/Desert_box_turtle)

**National Public Observatory Project at  
City of Rocks State Park  
by Steve Gilkison**

All I can tell you about the history of the astronomical observatory at CoR State park and by extension the observatory at Clayton Lake State Park is partially conjecture upon my part based upon the history of our interaction with the parks.



Gene and Elisabeth Simon Observatory. Photo by Gabe Medrano.

In 2004 Governor Bill Richardson was hosting a town hall meeting in Las Cruces, New Mexico and I got on the list of people to go see him. At that time our National Public Observatory project was only about four years old and we were doing public outreach astronomy programs at Leasburg Dam State Park. I wrote up a proposal for the governor to establish a public outreach astronomy program and observatories utilizing the state parks. I tried to sell it by using the value of astronomy tourism for Arizona at that time which if I recall was quoted as being around 180 million dollars a year.

The Governor thanked me for my proposal, said it was interesting, and that they would look into it. Nothing ventured, nothing gained is what I thought at the time, and I did not expect anything much to come of it. Some months afterwards I was contacted by Steve Cary who was the head of the state

parks at that time for a meeting at Leasburg dam State Park. Apparently some money had magically appeared for this project.

I met Steve Cary there, and the state architect. I wrote up in general terms the design for a roll off roof observatory, and the state architect seemed pretty jazzed about that, because it was a new challenge for him. I had demonstrated the abilities of my Meade 12 inch SCT for Steve Cary at Hyde State Park on a cloudy night locating objects in sucker holes in the clouds and that demonstration seemed to be their guide for choosing a telescope. They chose a 14 inch Meade SCT for the observatory. They also chose a Robo pier to help make the telescope ADA compliant.

In the spring and summer of 2005 I assisted them with the installation of the telescope in the observatory. A dedication ceremony was held in October of 2005. Another thing our organization managed to bring to the table was grants to do public outreach astronomy in the parks on two separate occasions. These grants were for \$5,000 each from the NMSU Space grant Consortium as I recall. These grants were matched by two grants from the state parks, one to do programs, and one to do maintenance. Then in the fall of 2008 with the economic collapse, grants and any funding dried up.

In the years after the observatory the NPO managed to do public outreach astronomy programs at CoR SP on a

monthly basis except in the months of July and August which my experience has shown me to be futile to schedule because of the monsoon weather patterns in New Mexico. We also attempted to host two NPO public star parties each year at CoR SP. We finally gave up on these when attendance dwindled after the recession.

The camp ground astronomical naming scheme was suggested by me, and I offered them a list of constellation names starting with the most northerly constellation in the north end of the park, working to the south part of the sky, for the southern end of the park. They eliminated the constellation Cancer because it might offend some cancer survivors?

I also designed the scale of the solar system walk and the data to be put on the signage. It is one of the features of the park I really like but isn't well known by most people. I also offered information for the signage on astronomical objects posted in the parks. There are some transcription errors on these signs that arose because the person working up the signs misunderstood the information I gave them but this kind of thing is unavoidable when you work with non astronomers.

I hope this helps. I am not privy to the back channel goings on inside the state government and the parks system. To the best of my knowledge it was our proposal to the governor led to the establishment of these two observatories in the state parks. I visited Clayton Lake State Park once,

and got to meet the park manager there, as well as inspecting the observatory there. I would not have recommended establishing an observatory at Clayton because of both its remoteness, and the proximity of a lake.

If you were to consult the state parks officials in Sante Fe today I doubt any of them would know of the NPO, or much about the real history of how these observatories came to be. Apparently someone locally donated some funding, which got the observatory at CoR SP named after him. I have no idea who this person is, and we have not had any regular communications with the head office in Sante Fe for several years.

**John Gilkison**  
Former NPO JAFO

#### CITY OF ROCKS STATE PARK GEOLOGY

Article and photos courtesy of New Mexico Bureau of Geology and Mineral Resources  
([https://geoinfo.nmt.edu/tour/state/city\\_of\\_rocks/home.html](https://geoinfo.nmt.edu/tour/state/city_of_rocks/home.html)).

*modified from McLemore, V.T., 1997, City of Rocks State Park: New Mexico Geology, v. 19, p. 44-47.*

#### Introduction

City of Rocks State Park is truly a geologic monument; it is formed by large sculptured rock columns (pinnacles) or boulders rising as high as 40 ft and separated by paths or lanes resembling

city streets (Figures 1 and 2). About 34.9 million years ago a large volcano erupted, forming the rocks in an instant (geologically speaking); then erosion over millions of years slowly formed the sculptured columns that now provide a natural playground for children and adults alike. City of Rocks State Park was established in May 1952 to preserve this geologic wonder.



Figure 1 – View north from the entrance to the park.



Figure 2 – Spires of Kneeling Nun Tuff sculpted by erosion.



**City of Rocks State Park is in the Mimbres Valley of the Chihuahuan Desert, and typical desert vegetation abounds. Mimbres is Spanish for willow. Yuccas, cacti, ocotillo, and juniper and evergreen oak trees are common in the park. The botanical garden near the entrance contains common and exotic species of desert plants, especially cacti. After a wet winter or after a rainstorm, wildflowers abound. The park is also home to many animals. At least 35 species of birds call this rock city their home, including bald eagles, golden eagles, hawks, horned owls, cactus wrens, roadrunners, and finches. Many of these birds live in cavities and crevasses in the rocks. Watch your campground carefully because ground squirrels, chipmunks, rabbits, or pack rats may invade and eat your supplies. Reptiles (rattlesnakes and lizards) and scorpions are also residents of City of Rocks, so keep young children close at hand.**

**Figure 3 – Educational display about the Kneeling Nun Tuff and radiometric age dating at the visitor's center.**

## Geology



Figure 4 – View toward Table Mountain located northeast of the park.

The rocks forming City of Rocks are predominantly ash-flow tuffs or ignimbrites that formed by a violent volcanic eruption of pumice, volcanic ash, gas, and coarser material. The ash-flow tuff at City of Rocks is part of the Kneeling Nun Tuff, which erupted 34.9 million years ago from the Emory caldera (McIntosh et al., 1991). The Emory caldera forms much of the southern Black Range east of the park. The volcanic ash was still hot and nearly molten when it was compacted and consolidated, forming a horizontal continuous layer of hot pumice and ash. In many areas, the ash fragments in the layer were hot enough to compact and weld together, forming the solid lava-like rock exposed at the park. Cooling and contraction of the tuff formed a pattern of vertical cracks called columnar jointing; these features can be

seen in the cliffs forming Table Mountain, northeast of City of Rocks (Figure 4).

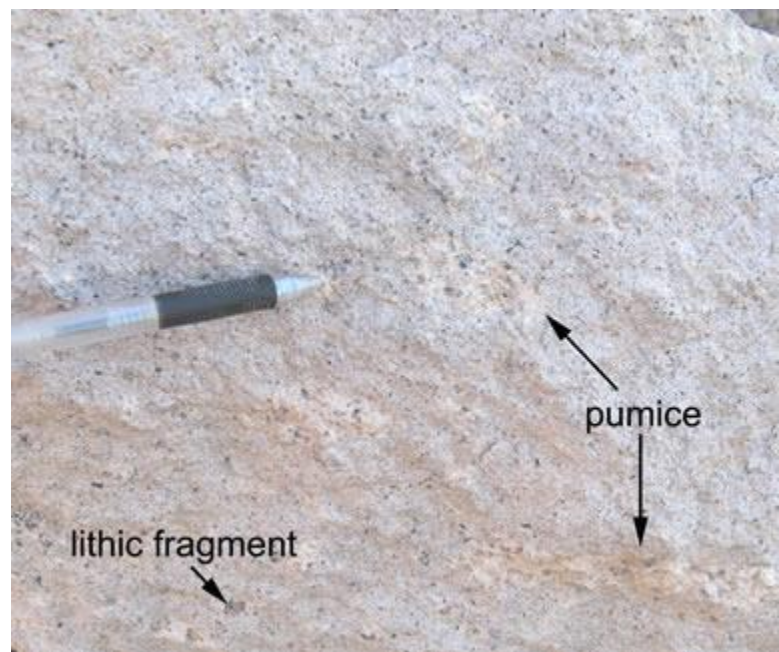


Figure 5 – Pumice (pink) and lithic fragment (brown) set in the crystal-rich gray matrix of the Kneeling Nun Tuff . Note that the pumice in the lower right is elongated and flattened. The tuff here is moderately welded. The ballpoint pen is shown for scale.

The Kneeling Nun Tuff represents only one of dozens of huge ash-flow tuff eruptions that occurred between 36 and 24 million years ago in southwest New Mexico. Many of these eruptions were larger than any eruptions known from recorded human history; the Kneeling Nun Tuff eruption was more than one thousand times larger than the 1980 eruption of Mt. St. Helens. Three other ash-flow tuffs, ranging in age from 34.4 to 33.4 million years (McIntosh et al., 1991), are exposed on the slopes of Table Mountain, immediately north of City of Rocks State Park (Figure 4). The source



calderas for some of these ash-flow tuffs were south of Lordsburg, N.M.

The ash-flow tuff that forms City of Rocks is of rhyolite composition. A close look will reveal phenocrysts or mineral grains surrounded by a finer groundmass or matrix (Figures 5 and 6). The shiny, black laths are hornblende crystals. The platy black crystals are biotite. The grayish-white to clear rounded crystals are quartz. White to clear, glassy laths or cubes are feldspar crystals. The matrix is too fine grained to be seen with the naked eye, but a microscope reveals that it is comprised of small grains of pumice (volcanic glass or ash), feldspar, quartz, and hornblende.



Figure 6 – Close up view of the matrix of the tuff. The rectangular black crystals are hornblende. Other crystals that can be seen include sanidine and quartz. The tip of the ballpoint pen is shown for scale.

Some of the larger, clearer feldspar crystals are potassium-rich sanidine, an ideal mineral for dating with the  $^{40}\text{Ar}/^{39}\text{Ar}$  method (Figure 3). Very precise ages have been determined for ash-flow tuffs in the City of Rocks area by

using a  $\text{CO}_2$  laser to melt single sanidine crystals and release argon gas, then measuring argon isotopes in a mass spectrometer (McIntosh et al., 1991). These ages range from 35.2 million years for an ashy sandstone beneath the Kneeling Nun Tuff to 33.4 million years for the ash-flow tuff that forms the top of Table Mountain. The precise age determinations help in understanding the history of this sequence of rocks, originally mapped as Sugarlump Tuff by Elston (1957) and Seager et al. (1982).



Figure 7 – Fracture in the middle of one of the "streets" at City of Rocks State Park.



Figure 8 – White arrows point out fractures controlling the erosion of the tuff. Note the person for scale.



Figure 9 – Arrow highlights a fracture that is being enlarged by erosion.

The “streets” in City of Rocks are formed by orthogonal fractures (Figures 7, 8, and 9) Mueller and Twidale, 1988a, b). More than one mechanism formed the fractures that trend north-northeast, east-northeast, and northwest (Mueller and Twidale, 1988a, b). Some fractures may be columnar jointing formed as a result of cooling; others may be associated with the release of gravitational load as younger overlying rocks were eroded (Mueller and Twidale, 1988a, b). Some fractures may have formed during erosion.

Weathering of the ash-flow tuff at City of Rocks, in part by freeze-thaw action and wind, formed the rocks as we now see them. Water seeps into the cracks, expands upon freezing, and widens the crack. Vegetation grows in the cracks and further widens the crack. Wind removes the finer-sized material. Although the surficial weathering processes are important, the difference in shape and color of the rocks from an upper steep-sided dark gray to a lower flared cream to reddish brown suggests that much of the weathering occurred in the subsurface (Mueller and Twidale, 1988a, b). Subsurface weathering by water and humic acids in the soil horizon slowly dissolved and eroded the rocks, forming the flared bottoms. Several periods of weathering occurred as evidenced by multiple flares. The combination of freeze-thaw, vegetation, wind, and surface and subsurface weathering over millions

of years finally produced the landforms known today as City of Rocks. Surface runoff has stripped the former soil mantle and revealed the bare rock below. The rocks at City of Rocks are actually columns or pinnacles because they have weathered in place and have not been moved. Boulders are detached blocks of rocks that gravitational forces have moved.

#### References

1. Elston, W. E., 1957, Geology and mineral resources of the Dwyer quadrangle, Grant, Luna, and Sierra Counties, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Bulletin 37, 86 pp.
2. Julyan, R., 1996, Place names of New Mexico: University of New Mexico Press, Albuquerque, 385 pp.
3. McIntosh, W. C., Kedzie, L. L., and Sutter, J. F., 1991, Paleomagnetism and  $^{40}\text{Ar}/^{39}\text{Ar}$  ages of ignimbrites, Mogollon-Datil volcanic field, southwestern New Mexico: New Mexico Bureau of Mines and Mineral Resources, Bulletin 135, 79 pp.
4. McLemore, V. T., 1996, Copper in New Mexico: New Mexico Geology, v. 18, pp. 25–36.
5. Mueller, J. E., and Twidale, C. R., 1988a, Geomorphic development of City of Rocks, Grant County, New Mexico: New Mexico Geology, v. 10, pp. 73–79.
6. Mueller, J. E., and Twidale, C. R., 1988b, Landform development of City of Rocks State Park and Giant of the Mimbres; in Mack, G. H., Lawton, T. F., and Lucas, S. G. (eds.), Cretaceous and Laramide tectonic evolution of Southwestern New Mexico: New Mexico

Geological Society, Guidebook 39, pp. 185–190.

7. Seager, W. R., Clemons, R. E., Hawley, J. W., and Kelley, R. E., 1982, Geology of the northwest part of Las Cruces  $1^\circ \times 2^\circ$  sheet, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Geologic Map GM-53, scale 1:250,000.
8. Weber, R. H., 1980, City of Rocks: New Mexico Geology, v. 2, pp. 10–11.

### REFLECTIONS ON A PLANT INVENTORY: THE FLORA OF CITY OF ROCKS STATE PARK

by William (Bill) R. Norris.

Photos by Russ Kleinman except where noted [adapted and updated from an article that originally appeared in the New Mexico Native Plant Society newsletter 40(3):12-15]

One of the Seven Wonders of the Natural World, er, of New Mexico, has to be City of Rocks State Park. One can drive for miles and miles across open rangeland in the southwest corner of our state, past cholla and mesquite and tall soaptree yuccas and low creosote flats and water tanks and brown grass and hungry cattle and, if one pays attention, occasional nervous pronghorn antelope all on the other side of taut barbed wire as the mile markers zip by. This distinctive landscape has been the backdrop for countless Westerns and, while never boring and always worthy of one's attention, can lead to daydreaming. When one is in this latter state of mind, the shock of suddenly seeing the cluster of tall palisades at City of Rocks State Park through one's

windshield for the first time is akin to being splashed in the face with ice water.

My wife Denise and I experienced this very astonishment when visiting City of Rocks (CRSP) almost 20 years ago, upon moving to southwestern New Mexico. A number of friends and acquaintances of ours who have travelled through the area decades ago seem always to remember CRSP while recalling no other landmark or natural area. Unlike its English counterpart (yes, Stonehenge), the origin of this geologic formation is well understood. These pinnacles are of volcanic origin, being remnants of ash deposits of the Kneeling Nun formation dating back approximately 35 million years to the late Paleogene Period (or the early Oligocene Epoch, as those of us of a certain age learned it years ago). As explained by the ultimate source of all information worth knowing (you guessed it, Wikipedia), “erosion sculpted the rock formations seen today.” Not if but *when* you find time to visit CRSP, plan to stop by the Visitor’s Center to study the very well executed wall mural that explains the above processes in such a way that even I, a non-geologist, can understand.

The flora of this state park is also of interest, especially to a card-carrying botanist (ahem). The plants I encountered in the landscape surrounding the palisade cluster were my first real introduction to shrubs, forbs, and grasses characteristic of desert shrublands and desert grasslands. Unfamiliar plant names entered my botanical lexicon: mariola

(*Parthenium incanum*), yerba de pasmo (*Baccharis pteronioides*), crucifixion thorn (*Koeberlinia spinosa*), melon loco (*Apodanthera undulata*), spiny blue bowls (*Giliastrum acerosum*), tobosa (*Pleuraphis mutica*), vine mesquite (*Hopia obtusa*), and others. Furthermore, standing at high points in the park, I was impressed that CRSP is situated in a shallow basin surrounded by open grassland largely free of tall trees. Desert grassland, I have since learned, is a vegetation type that likely occupied much of southern New Mexico prior to its settlement by Europeans.

Shortly after my first few visits to CRSP, I decided to conduct an inventory of the park flora. For all of you budding field botanists out there, plant inventories are a great way to begin learning a regional flora. By embarking on such a project, you have committed to documenting the occurrence of the majority of vascular plant species that occur within the boundaries of some fixed target area. Even though many botanists have expertise in the identification of plants in particular families or groups (e.g., ferns, cacti, euphorbs, mustards, grasses, woody plants, etc.), not many of us are experts in the identification of plants in all plant families. An ancillary benefit to conducting a plant inventory is that, after repeated visits to the area being inventoried, one becomes familiar with the biology of many plant species. Specifically, one learns in which microhabitat(s) a given plant species

typically occurs; which other plant species it associates with; the timing of its emergence from the soil/bud break, flowering, fruiting, and senescence; and what (if one pays very close attention) pollinates it. Also, by conducting a thorough plant inventory in an area such as CRSP, ideally over several to many years, one obtains valuable information of use to land managers, including the occurrence of plant species of conservation concern (i.e., state or federally listed), potential threats by nonnative plant species, and so on. Finally, the completion of a plant inventory provides the basis for compilation of a plant list, which, as I have observed and have been informed by park managers, is frequently requested by park visitors.

I have been working on this particular ongoing floristic inventory off and on for about 18 years. I have enjoyed the collaboration of two individuals who have made significant contributions to this project. The first is Mr. Javier Kirker, now an employee with a natural resource management agency, who in the late 2000s conducted a mini-inventory of the park's flora as a special project while completing a B.S. in Botany at Western New Mexico University (WNMU). Javier documented the occurrence of well over 100 plant species in the park, several of which I have yet to see personally except on his plant collections, which have been mounted on herbarium sheets and accessioned into the Dale A. Zimmerman

Herbarium at WNMU. The second collaborator is Mr. Tim Geddes, a man of many talents who upon his recent retirement moved from Mississippi to the Silver City area. I met Tim during the summer of 2012 while helping Dr. Jack Carter put on a woody plant workshop on the WNMU campus. Somehow the topic of the CRSP floristic inventory came up, Tim offered to help with the project, and, ever since, we have spent many enjoyable hours, usually on Sunday mornings, exploring all corners of the park while looking for the next elusive plant species. Tim has broad interests in natural history, with special interest in herpetology, and while looking for plants Tim is also an excellent nature photographer, and has taken on primary responsibility for photographing hard-to-collect plants, especially cacti, yuccas, and agaves, to document their occurrence in the park.

And so, after almost 20 years of exploring this fabulous park, what are our findings? To date, we have documented the occurrence of more than 300 vascular plant taxa, of which more than 90% are native to New Mexico. None of these taxa are listed as endangered or threatened at the state or federal level. This latter result does not lessen my fascination with the flora, because, as stated earlier, it contains so many examples of plants characteristic of desert grasslands and desert shrublands.

Having spent so much time exploring CRSP, visiting some areas on multiple

occasions and seeing the same plant species again and again, I find myself categorizing and ranking some of them in ways that don't lend themselves to inclusion in the typical plant-inventory list. Let me share some of these with you.

**Signature Plant.** What plant would I recommend be chosen as the park emblem, perhaps to appear on a park T-shirt or cap? Obvious choices would be soap tree yucca, barrel cactus, or some other southwestern arborescent desert succulent. It would also be easy to settle on a plant with big, gaudy flowers like jimsonweed (*Datura wrightii*). However, my choice is Arizona bluecurls (*Trichostemma arizonica*), with its delicate blossoms and overarching stamens and pistil. This plant, which in my experience is nowhere common in southwestern New Mexico, is quite easily found at the base of pillars at CRSP.



Arizona bluecurls (*Trichostemma arizonica*)

**Most Conspicuous Exotic Forb.** African Rue (*Peganum harmala*), which to my eye is quite attractive, with its showy white blossoms, but which can become a nuisance along roadsides. I encountered this plant during my very first visit to the park, along the gravel overlook road near the park boundary. Then, mysteriously, it disappeared for the next nine or so years! Extirpated? Nyet! I found a small group of three African rue plants in late spring 2014. My pry-bar took care of that.



African rue (*Peganum harmala*)

Fast forward to 2020: While walking on foot along the park Loop Road early this summer, Russ Klelinman discovered a population of Malta star thistle (*Centaurea melitensis*) growing in the vicinity of the Orion Group site. Tim and I are planning to work with park staff to eradicate this highly invasive plant from the park in the near future.



Malta star thistle (*Centaurea melitensis*)

**Most Conspicuous Exotic Grass.**  
**Lehmann's Lovegrass (*Eragrostis lehmanniana*).** This grass is seemingly everywhere on the margins of Highways 180 and 61, which provide access to the park, and from there it has marched right past the entrance into the park. Lehmann's Lovegrass is here for good, I'm afraid.



Lehmann's lovegrass (*Eragrostis lehmanniana*)

**Most Shy Plant:** Heyder's nipple cactus (*Mammillaria heyderi*). Forming a low, dark green dome almost flush with the soil, the plant Tim and I discovered last

fall is doubly concealed by virtue of occurring at the base of a much more conspicuous pancake prickly pear (*Opuntia chlorotica*), which surely draws one's eye away from the ground to usually preserve this little cactus's anonymity.



Heyder's nipple cactus (*Mammillaria heyderi*)

**Most Elusive Plant:** For some reason, I became obsessed with adding Tarbush (*Flourensia cernua*), with its sticky, often nodding yellow flower heads, to the park's flora. I had seen it in the foothills of the nearby Florida Mountains, and in slightly lower-elevation rangeland to the south, along with many associated plant species that I had already encountered in CRSP. It should be here, right? Well, it was not until early 2014 that Tim and I, walking on a trail in the northern region of the park, stumbled upon a small population (< 10 shrubs) of tarbush in the park. We were both so excited, we shook hands!

by their occasionally browsed condition in the park.



Tarbush (*Flourensia cernua*)

**Most Tasty Plant:** Depends on who you ask. If you are a cow, I suppose that you would choose one of the grama grasses: blue grama (*Bouteloua grama*), sideoats grama (*Bouteloua curtipendula*), or black grama (*Bouteloua eriopoda*).



Sideoats grama (*Bouteloua curtipendula*)

However, some other critter of unknown origin prefers the fibrous shoots of soaptree yucca (*Yucca elata*), as evidenced



Soaptree yucca (*Yucca elata*). Photo by Tim Geddes

**Most Toxic Plant:** I wouldn't know how to go about comparing the toxicity of one plant to another's. I do know that many, many desert shrubs and forbs, particularly members of the Asteraceae and Fabaceae, are toxic to livestock. However, if I modify this category to *Most Attractive Toxic Plant*, it would be hard to argue against woolly locoweed (*Astragalus mollissimus*). At least twice this spring, while Tim and I were eating lunch in the shade provided at the Visitor's Center, we overheard visitors asking park personnel to identify "that lovely plant with purple flowers" growing just around the corner. In both cases, it was woolly locoweed, and thank goodness that at least one member of the genus *Astragalus* in New Mexico lends itself to easy identification.





Woolly locoweed (*Astragalus mollissimus*)

**Most Foul-Smelling Plant:** Hands down, buffalo gourd (*Cucurbita foetidissima*), which Tim and I finally found for the first time at CRSP last fall, draped over some low mesquite trees. Want to know what it smells like? An alternate, unpublished, but widely used name for this sprawling vine, Armpit Plant, should answer this question.



Buffalo gourd (*Cucurbita foetidissima*)

**Most Annoying Plant:** When I stupidly wear tennis shoes while exploring CRSP (and even sometimes when I wear an old pair of boots), I will invariably feel mild foot discomfort that I will initially dismiss but that will eventually cause me to grimace and force me to stop. I will sit down, take off my shoe, and look for the offending spine that has lodged in my shoe and is attempting to penetrate my foot. The culprit? Sprawling honey mesquite plants, maintained at short heights by freezing and/or drought events, as mesquite expert Richard Felger explained to me. Of course the solution to this problem is: Don't wear tennis shoes while conducting field work in the desert!



Honey mesquite (*Prosopis glandulosa*)

**Most Painful Plant:** Certainly, no pain would compare to being thrown face-first into a sprawling prickly pear or agave or mesquite tree or crucifixion thorn. Let's assume that we will go out of our way to avoid the above circumstances. Then, my answer to this question, hands down, is the little noseburn (*Tragia ramosa*) plants

that grow in disturbed areas. I remember my first encounter with this plant, when I bent down to grasp it with my bare fingers, only to recoil, uttering obscenities, while experiencing the bite of its stinging hairs, like the first time I stupidly grasped a live electric fence wire. I won't do it again!



Noseburn (*Tragia ramosa*)

**Plant Most Likely to Make You Shudder in Fear:** Again, when (not if) you visit CRSP, pay close attention to the roadside vegetation at the intersection of the overlook road and the main entrance road, to your right just after you enter the park. It is impossible to miss a bright green tangle of thick, menacing green stems and thorns that defy anyone to

brush up against them. Crucifixion thorn (*Koeberlina spinosa*). Aptly named.



Crucifixion thorn (*Koeberlina spinosa*)

This wraps up this summary of almost 20 years of plant-inventory work that fellow plant enthusiasts and I have joyfully conducted at CRSP within the original park boundary. However, land purchases and donations over the years have increased the park's boundaries about from its original 686 acres to its current 2,939 acres, which includes recovering rangeland, a cienaga and a large part of Table Mountain. Tim and I have begun and will continue our botanical explorations of this expanded version of the park. We have our work cut out for us!



# Membership Application

Friends of City of Rocks State Park, Inc. (FCR)

FCR is a non-profit 501(c) organization dedicated to enhance, preserve and promote park use. Your contribution and membership will give you the satisfaction of helping preserve and protect one of the most beautiful places on the planet.

\_\_\_\_\_ New \_\_\_\_\_ Renewal

Name(s) \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Phone \_\_\_\_\_ E-Mail \_\_\_\_\_

Yes, I want to support FCR. Enclosed are my annual membership dues. Dues and donations are tax deductible.

**\*ACTIVE MEMBER: (Voting)**

**SPONSOR (Non-Voting)**

\_\_\_\_\_ \$15 Individual

\_\_\_\_\_ \$25 Friend

\_\_\_\_\_ \$20 Family

\_\_\_\_\_ \$50 Good Friend

\_\_\_\_\_ \$10 Senior (single or couple)

\_\_\_\_\_ \$75 Very Good Friend

\_\_\_\_\_ \$500 Lifetime

\_\_\_\_\_ \$100 Best Friend

\_\_\_\_\_ \$500 Special Best Friend

In addition to my dues, I enclose \$ \_\_\_\_\_ as a donation (optional)

\*Active dues paying members are those individuals who are entitled to vote at annual meetings and MUST participate in at least one of the following. Please check at least one of the following:

\_\_\_\_\_ Hospitality \_\_\_\_\_ Newsletter \_\_\_\_\_ Programs \_\_\_\_\_ Membership \_\_\_\_\_ Publicity

\_\_\_\_\_ Garden Care \_\_\_\_\_ Fund-Raising \_\_\_\_\_ Events \_\_\_\_\_ Scrapbook \_\_\_\_\_ Officer

Active Members receive free day admittance to City of Rocks State park

Thank you for your support and interest. Together we can create an awareness of the wonder, fragility, and importance of City of Rocks State Park.

Please send your check to: Friends of City of Rocks State Park, Inc., PO Box 74, Hurley, NM, 88043

Upon receipt of our completed membership application, you will receive a welcome letter, receipt, and membership card. For further information or questions, please call 1-228-363-1403.

Official use only

Date Received: \_\_\_\_\_ Ck#: \_\_\_\_\_ Cash: \_\_\_\_\_ Membership Card: \_\_\_\_\_