

The Nature Park News

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The Nature Park News is published quarterly by the Chihuahuan Desert Nature Park, a nonprofit organization dedicated to increasing scientific literacy by fostering an understanding of the Chihuahuan Desert. Please direct all inquiries to:

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Something For Everyone at Monthly Public Programs

Night owls, birders, butterfly enthusiasts, and people who just want to learn more about the desert all had something to celebrate this summer. Each group had a program targeting their interest as part of the monthly program series at the Nature Park.

“By scheduling a wide variety of activities for the entire community, we hope to bring curiosity about the desert into everybody's lives,” said Site Coordinator Paul Harper.

The fun began on June 16 during the Nature Park’s popular “Nightlife of the Desert” program. Visitors were treated to hands-on activity stations designed and run by talented local teachers who took part in the Nature Park’s summer workshops.

In July, all eyes were in the sky for the “Early Birding” program, hosted by local ornithologist Brian Locke. “We were so happy to see many people new to birding at this event,” said Executive Director Stephanie Bestelmeyer. “It shows how much these programs are needed in our region.”

The popular “Butterfly Flutterby” made its fifth annual appearance at the Nature Park on August 18. More than 200 visitors saw displays of live and preserved butterflies, learned how to attract butterflies to their gardens, played games, and did crafts projects to

learn more about these fascinating pollinators.

September’s event was a first, but based on its success, it will surely be offered again. Board member Justin Van Zee offered a wildlife tour on September 15. You can read more about this event on page 6.



Visitors of all ages enjoyed displays of butterflies on exhibit at the “Butterfly Flutterby.”

On October 20, the “Pre-Winter Nature Walk” gave visitors a chance to learn about autumn in the desert. Visitors got a guided tour to learn from local scientists about many aspects of the desert.

The public program series will continue in 2008, and we are dedicated to once again providing a variety of fun ways to learn about the desert. Look for a listing of upcoming programs in the next issue of the newsletter or take a sneak peek at the 2008 calendar of events in November on the Nature Park website (www.cdnp.org). We hope to see you at one of our events soon!

Notes from the Director

New K-12 Education Program Structure



By Stephanie Bestelmeyer, Ph.D.

"I knew the Nature Park could bring some animals to the classroom, but I had no idea about the wide variety of other programs you offer. I am so excited I discovered this!" This comment came from a Las Cruces teacher who recently visited the Nature Park's web site to look at our programs, and it is not an uncommon reaction.

For the last eight years, the Chihuahuan Desert Nature Park has provided field trips and classroom programs to between 7,000 and 14,000 children each year. However, many teachers asked for the same programs year after year and didn't know much about all of the other options.

Adding to the excitement is the completely redesigned program offerings that we launched at the beginning of the 2007/08 school year. We have enhanced all

programs and added new ones to provide a huge variety for four different grade ranges (K-2nd grade, 3rd-5th grade, 6th-8th grade, and 9th-12th grade).

In total, we now have 35 hands-on activity stations for field trips and 30 different programs that can be brought into the classroom. Each program teaches about science content, teaches how scientific research is conducted, is appropriate for the grade level targeted, and is aligned with the New Mexico and Texas state education standards. Programs span topics as varied as biomes, desert animals, food webs, field science methodology, fossils, mineral identification, geology of the local mountains, and the solar system.

We are proud of these diverse, innovative, new programs that have



Middle school students learn about weather by using real instruments like anemometers to collect wind speed data.

been in development for several years. We look forward to helping students learn and experience the wonder of science in more depth each year through this tiered structure.

For more information and a full description of these programs, please visit the Nature Park's website (www.cdnnp.org).



Calendar of Events

November 3-4 - Doña Ana Arts Council Renaissance Arts Faire. Visit the Nature Park's booth in the Children's Realm of this popular arts and entertainment fair (10am - 5pm Saturday and 10am - 4pm Sunday). Make a craft project that will attract hungry birds to your yard. \$1 for Nature Park activity; \$5 admission for fair.

November 10 - Nature Park's booth at the Las Cruces Farmer's Market. Come visit the Nature Park's booth at the popular Farmer's Market in the Downtown Mall in Las Cruces from 8:00 AM - 12:00 PM. There will be a fun science activity for kids. Free.

November 14 - Pecan Trees. Talk by John White and Richard Herriman for the Native Plant Society of New Mexico meeting. 7:00 PM at the Social Center at the University Terrace Good Samaritan Village in Las Cruces. Free.

December 1 - Hike to Mt. Riley (part of the West Potrillo Mountains) sponsored by the Southwest Environmental Center. Difficult hike led by Jack Davis. Call SWEC (522-5552) for more information.

December 8 - Nature Park's booth at the Las Cruces Farmer's Market. Come visit the Nature Park's booth at the popular Farmer's Market in the Downtown Mall in Las Cruces from 8:00 AM - 12:00 PM. There will be a fun science activity for kids. Free.

December 15 - Fitness Walk in the Desert. Walk away holiday stress and enjoy some fresh air at the Chihuahuan Desert Nature Park. The event begins at 10:00 AM. Free.

Desert Plants are Filled with Fungi and Bacteria

By Mary Lucero

USDA-ARS Jornada Experimental Range

More than 20 years ago, Jerry Barrow of the Jornada Experimental Range observed that fungal hyphae are always visible when seeds from the desert shrub fourwing saltbush sprout. This intrigued him, particularly after observing that seeds covered with these hyphae grew aggressively.

Barrow began exploring the possibility that fungi may not be the “bad guys,” or saprophytes working to steal sugars from the hard working plants, that traditional plant pathologists perceived them to be. Instead, he wondered if they were symbiotic organisms, whose water and nutrient transport abilities made them necessary for plant survival in arid ecosystems.

Two decades later, support for Barrow’s hypothesis is overwhelming. His patient examination of plant tissues from fourwing saltbush and other plants has revealed fungal colonization throughout the roots, leaves, and stems of every native plant examined. Presence in plant vascular tissues suggest possible roles in water and nutrient transport, while root exclusion studies have demonstrated that fungi can provide carbon and phosphorus to growing plants. Attempts to produce fungus-free plants have

failed, since doses of fungicide that are high enough to eliminate the fungus have also killed the host plant, and cells previously described as leaf surface microhairs on grasses have proven to be fungal cells.

But the most exciting implications of this work involves the potential to use fungi and other microbes that live in

sacaton. In some cases, transferred endophytes appear systemic, suggesting they could be passed from the recipient plant to its seed. Grasses containing transferred endophytes establish more quickly, exhibit lower mortality, and produce more seeds than untreated plants, suggesting endophytes may be useful for increasing the success of native grass revegetation.



Native sand dropseed grass (*Sporobolus cryptandrus*) with added endophytes (left) and without added endophytes (right) from the hardier alkali sakaton (*Sporobolus airoides*).

desert plants to improve performance of grasses used for restoration and crop improvement. In recent years, Barrow and I have transferred endophytes (“*endo-phyte*” or “inside plant” refers to any microorganism that naturally colonizes plant tissues) from desert shrubs like fourwing saltbush to several native grass and crop plant species. Genetic analysis reveals that transferred endophytes include both fungi and bacteria. Although results vary by species and by timing of transfer, plants as diverse as tomatoes, chile, strawberries, sorghum, and black grama grass have all responded positively to endophytes from hardy desert plants like creosote bush, fourwing saltbush, and alkali

Other uses may include enhancing yields of crop plants for food or biofuel production. Research is underway to determine whether transferred endophytes are carried by the plant to subsequent generations through the seed.

So, next time you look at a plant or eat a piece of fruit, stop to consider the many wonderful bacteria and fungi may be calling that plant “home.”

About the Author

Mary Lucero is a plant molecular biologist and biochemist at the USDA-ARS Jornada Experimental Range. Her research explores biochemical interactions between plants, endophytes, and their habitat. She has published natural product profiles of several desert plant species, has developed methods for identification of novel, uncultured endophytes in native plants, and has filed a patent (Application S.N. 11/500,702) for the transfer of symbiotic fungi to non-host plants. She has been at the Jornada Experimental Range since 1999.

Site Development Corner



By Justin Van Zee

President of the Board of Directors and Chair of the Site Development Committee

There are lots of exciting projects taking place at the Chihuahuan Desert Nature Park. The next time you visit the Park site, you may see the result of lots of planning and hard work.

Two new shade structures will be constructed near the parking area. One of these structures will be attached to the south side of the current building, and the other will be built over an existing picnic table near the soil pit. These structures will be made of very durable steel framing, and reed screen roofing will be added to create a natural look. Because very little natural shade is available in the area, these structures will be highly used, especially by school children during field trips and by visiting hikers and picnickers.

New restrooms are on the drawing board too. It has been difficult the last few months to host events at the Park site without proper facilities, so restroom renovations are high on our priority list. We are converting the original, damaged restroom into a much-needed storage building, and we will construct new restrooms nearby. An architect will help us

determine how the two buildings will relate to each other and how they will aesthetically fit into the site plan.

The science demonstration plot sign on Jornada Road is receiving a facelift too. Our original sign was showing signs of deterioration, so we're replacing it with a high-pressure laminate sign, similar in construction to the signs on the Desert Experience Mini-Trail.

Just a short walk from the parking area will be a new scientific soil pit demonstration, complete with a couple of laminate signs describing all layers of soil and how soil scientists interpret them. Most of the work for this project is already completed. The signs are in the final editing stages.

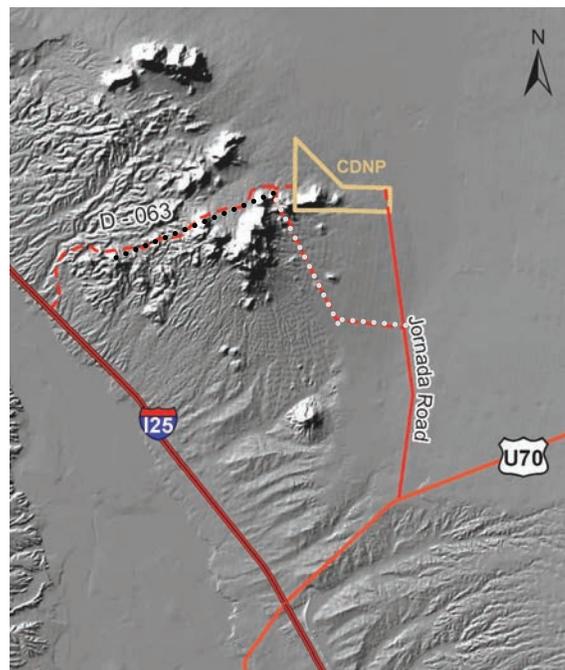
If everything comes together as planned, by the middle of 2008 we will also have a new shade structure in the Xeriscape Memorial Garden, and the rock wall around the parking area will be repaired.

All in all, we have a full plate of projects slated for the Park site. Despite the vandalism earlier this year, the Park's enthusiastic staff and volunteers will make sure we can end this year on a positive note and start 2008 with renewed energy.

New Hours at the Nature Park

The Chihuahuan Desert Nature Park has new hours. It will be open from 7:00 AM until 5:00 PM, Tuesday through Saturday as well as during other hours when Chihuahuan Desert Nature Park staff hosts education events. During these times, the main gate across the entrance road to the Nature Park will be unlocked and open.

We realize that some people access the west Doña Ana Mountains through the Chihuahuan Desert Nature Park, but this will no longer be possible due to the closing of the road at the north side of the Park. However, the west Doña Ana Mountains can still be accessed from Jornada Road at all times using one of several alternate routes (see map).



Access to the west Doña Ana Mountains will still be possible via the dashed routes marked above. Color copies of this map with written directions are available at the Nature Park office.

Debut of Newsletter for Teachers

September marked the debut of the first Nature Park newsletter exclusively for teachers. The "Desert Wind" newsletter is delivered via e-mail. It is designed to give the latest information on teacher workshops, grant opportunities, public events, and other news of interest to teachers throughout the region.

The first edition of the newsletter was delivered to teachers' e-mail addresses in September. We will continue to send them monthly so teachers always have the most current information.



If you or someone you know would like to be on the newsletter distribution list, please send an e-mail to Program Coordinator Rink Somerday (cdnp_rink@zianet.com).

Meet and Greet Events in September

The 2007/08 school year brings lots of changes and enhancements to the Chihuahuan Desert Nature Parks K-12 education programs. With new and restructured education program offerings (see page 2) and a newsletter exclusively for teachers (see article at left), we wanted to make sure we got information out about these changes to as many teachers as possible.



To this end, Program Coordinator Rink Somerday and Board member Donna Yargosz held two Meet & Greet events in September. The first event was held at Gadsden High School in Anthony, New Mexico on September 12, and the second event was held at Alameda Elementary School in Las Cruces on September 13.

Although the turnout was low, teachers who did attend were excited to learn about all of the enhancements to the Nature Park's programs for the new school year. The staff looks forward to working with these teachers and their students during the rest of the year.

Education Programs

Here are the programs your donations helped us provide from July through September 2007.

July 14	Farmer's Market - Nature Park booth	Sept. 8	Farmer's Market - Nature Park booth
July 19	Scientifically Connected Communities teacher workshop	Sept. 12	MacArthur Elementary - I'm A Scientist, Too classroom program
July 21	Early Morning Birding program at the Nature Park	Sept. 12	Gadsden School District - Teacher Meet & Greet
Aug. 2	UTEP - teaching environmental science using inquiry program for GK12 participants	Sept. 13	Las Cruces School District - Teacher Meet & Greet
Aug. 4	Elephant Butte State Park - talk on desert animals	Sept. 14	Las Cruces High School - Food Web classroom program
Aug. 4 & 5	Bug Fest at the El Paso Zoo	Sept. 15	Wildlife Tour of the Jornada Basin
Aug. 4	Becoming an Outdoors Woman - desert animal	Sept. 19	Sierra Middle School - field trip
Aug. 7	National Night Out - Nature Park booth	Sept. 20	Vista Middle School - field trip
Aug. 18	Butterfly Flutterby	Sept. 22	Chihuahuan Desert Fiesta - Nature Park booth
Sept. 5	Valley View Elementary - I'm A Scientist, Too classroom program	Sept. 24	Desert Hills Elementary - field trip
Sept. 5	Central Elementary - I'm A Scientist, Too classroom program	Sept. 25	Desert Hills Elementary - field trip
Sept. 6	Booker T Washington Elementary - I'm A Scientist, Too classroom program	Sept. 27	Alameda - Habitat Stats classroom program
		Sept. 28	Vista Middle School - field trip
		Sept. 28	Deming Agtober Fest - Nature Park booth
		Sept. 29	El Paso Independent School District - teacher workshop on weather and microclimates

Exclusive Tour of the Desert A Huge Success

By Rink Somerday, Program Coordinator

On September 15, eleven visitors climbed into the Nature Park van and got to explore a place rarely visited by the public. Led by Nature Park Board President, Justin Van Zee, they went to several locations within the unique landscape of the USDA-ARS Jornada Experimental Range (JER), located north of Las Cruces.

Members of the tour group came from as far away as Deming and Roswell. They were given an introduction to the Nature Park and some of the history of the Jornada Experimental Range. The visitors viewed Mt. Summerford and the most northern peaks of the Doña Ana Mountains. They stopped several times to see some of the local wildlife such as cyanobacteria, which makes soil crust along with other microscopic organisms. The wildlife got larger as they passed a prairie rattlesnake and orioles.

But what everyone was keeping a sharp look out for were oryx. These true antelope (imported from Africa to White Sands many years ago) have migrated across the San Augustine and San Andres Mountains to take up residence on the JER. After passing through large mesquite dunes, five oryx revealed themselves! The visitors marveled at these large beasts.

The group walked to Red Lake, a desert ephemeral lake, where the holes of small burrowing animals were evident. Back on the road, the group passed Antelope Flats and headed to the JER headquarters for a gourmet lunch and some shade under the trees. After lunch, they went to Puddle Tank where a flock of Teal Ducks were taking a respite from their southern migration. Upon seeing the visitors, the flock took flight and gave an aerial acrobatics show that held the visitors in silent respect of Mother Nature.

This is the first tour of its kind and the response was tremendous. We look forward to offering such outings in the future.



Above: Tour participants got a relatively rare glimpse of an oryx.

Below: Justin Van Zee (left) helps everyone see the desert with a new lens.



Support the Park While Holiday Shopping

The next time you shop online, please start your search with a visit to **iGive.com**. When you visit this site first and then shop at your favorite retailers, your purchases add up to big donations for the Nature Park. Participating retailers donate up to 26% of purchases to the organization of your choice, and it is absolutely free to you. Visit **www.iGive.com** today!

The Nature Park is also still participating in a recycling, fundraising program. Drop off your **old cell phones or printer ink jet cartridges** at the Nature Park office. We recycle them and receive a donation.

Finally, if you use **GoodSearch.com (powered by Yahoo)** as your search engine, the Park receives a donation for every search.

Call us (505-524-3334) for details on any of these easy ways to support the Chihuahuan Desert Nature Park!

Albertsons' Community Partners Update

Many thanks to all of you who have inquired about the status of the Albertsons' Community Partners Program. As of the start of October, the new cards have not arrived. We were told by Albertsons' that they have not yet printed cards for the new program, but we will receive them as soon as they are printed.

In the meantime, we are still taking names of people who are interested in supporting the Nature Park once the program gets underway. Please call the office (505-524-3334) or e-mail Paul (cdnp_paul@zianet.com), and he will send you cards as soon as we receive them.

Thank you again for your continuing support of this program, which has helped us raise more than \$5,000 each year since we joined six years ago.

New and Renewing Members

Our thanks go to these individuals, families, and organizations who became Nature Park members or renewed their memberships through the end of September. We are so grateful for your support!

Turquoise

Anonymous
Arlene Tugel Neil Fuller
Donna and Michael Yargosz

Peridot

Las Cruces Tour of Gardens

Obsidian

Mary Beth Harper
Lynn and George Mulholland
Heidi Ziegler

Jasper

Anonymous
Arthur and Patricia Boardman
Rafael Veloz / Camino Real Homes
Eddie Garcia
Leland H. Gile
Michael and Diane Gilman
Kathleen Huttlinger
Michael and Diane Lilley
Don McKittrick
Steve and Peg McLary
Mark Sechrist & Beth Morgan
Quail Unlimited SW Chapter
Marie Southworth
Norman Todd
Sally Hunt & Dawn Tschabrun

Gypsum

Anonymous
Kurt and Marcia Anderson
Marshall Carter-Tripp
Joan Keeney
Janet and Glenn Sherbondy

Quartz

Anonymous (2)
Bill Brown
Judy Forney
Glen and JoAnn Hakola
Wendy Harless
Laura Humphreys
Mrs. Della Pease
Ceil and Jerry Phillips
Cecil and Joan Post
Jay and Martha Sharp
Noel and Betty Sivertson
Gayle Trantham & Jack Welch
Mrs. Anne Whelan



16(4)

Chihuahuan Desert Nature Park

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YES! I want to support the Chihuahuan Desert Nature Park's efforts to increase scientific literacy by fostering an understanding of the Chihuahuan Desert. All donations are welcome; the minimum donation to receive a printed copy of the newsletter is \$10. Please sign me up in the following category:

- Quartz (\$15 +) One-year subscription to the *Nature Park News*.
- Gypsum (\$50 +) One-year subscription to the *Nature Park News* and tickets to the Butterfly Flutterby.
- Jasper (\$100 +) Everything above plus and invitations to a VIP breakfast at the site.
- Obsidian (\$250 +) Everything above plus invitations to a VIP tour.
- Peridot (\$500 +) Everything above plus a limited-edition print of the Nature Park.
- Turquoise (\$1000 +) Everything above plus a custom cactus garden planter.

I would like \$_____ of this donation to go to the Chihuahuan Desert Nature Park endowment fund.

Please make checks payable to Chihuahuan Desert Nature Park or charge to:

Visa MasterCard Account Number: _____
 Expiration Date: _____
 Signature as it appears on card: _____

NAME _____

ADDRESS _____

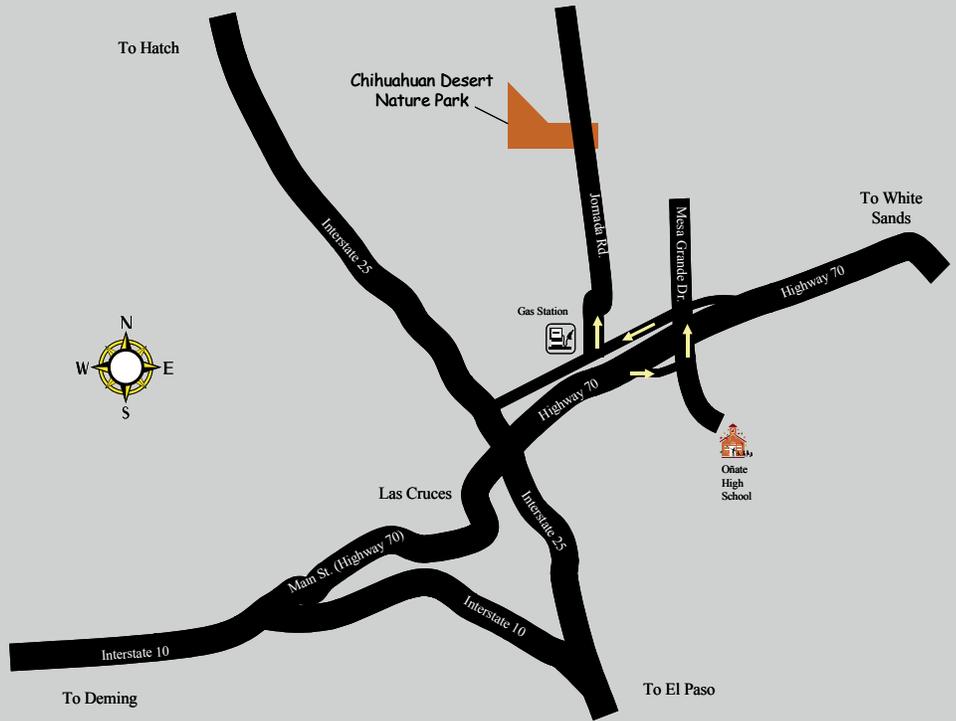
CITY _____ STATE _____ Zip _____ PHONE _____

E-MAIL _____ Check here if you do NOT want to be listed in Nature Park publications _____

Directions to the Nature Park

Open Tuesday - Saturday, 7AM - 5PM

- From I-25 in Las Cruces, head east on Highway 70.
- Take the Mesa Grande Drive exit (at Oñate High School).
- Make a U-turn under the highway to head west. After the U-turn, stay in the right lane.
- Turn right (north) on Jornada Road.
- Follow Jornada Road north for 6.5 miles. After approximately 1.5 miles, the road is unpaved.
- Turn left at the Chihuahuan Desert Nature Park sign.
- Follow the entrance road to the parking area and trailhead.



ENJOY!

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