



Desert Museum
Discovery
Summer 2024

**FOOD IN THE
FACE OF
CLIMATE
CHANGE**

BY ERIN RIORDAN, RESEARCH SCIENTIST

Our food production system is at a crossroads. It relies on large inputs of non-renewable resources such as fossil fuels and phosphorus, and consumes renewable resources, such as water and soil, at unsustainable rates.

Industrial giants that use highly extractive methods to produce lower-cost and sometimes lower-quality foods feed the majority, while small-scale farmers struggle to make a living selling higher-cost and higher-quality food to the few that can afford it.

In southern Arizona, farmers face the added challenge of growing food in an ecosystem where rainfall is sparse and erratic. Climate change is making matters worse. Warming temperatures, which increase water loss through evaporation and reduce freshwater supplies, have pushed what would have been a moderate drought into a dry spell ranked as the worst megadrought of the past 1,200 years.

Arizona farmers have already lost approximately one fifth of the water they use for crop irrigation (nearly one million acre-feet) due to water rationing, drought, and the effects of a warming and drying climate. Farmers and ranchers are struggling to hang on to their livelihoods and keep food production in the state.

Plants, animals, and ecosystems are struggling too. Many of the crops grown in the Southwest are poorly equipped to survive in desert environments, even in the best of times. Greater water demand in farming means less water for wildlands that support biodiversity.



PLANTS GROWN AT THE UNIVERSITY OF ARIZONA'S CAMPUS AGRICULTURAL CENTER WILL IMPROVE OUR UNDERSTANDING OF THE CLIMATE BENEFITS OF DESERT CROPS. THE PROJECT WILL ALSO PROVIDE PRICKLY PEAR, AGAVE, AND DESERT-HARDY BEANS LIKE COWPEAS, TO ARIZONA FARMERS PARTICIPATING IN THE PROGRAM. CREDIT: ERIN RIORDAN

HARVESTED AGAVES, PREPARED AND READY FOR ROAST. CREDIT: ERIN RIORDAN.



We need solutions. Luckily, climate-smart farming practices build resilience to changing climate conditions, reduce greenhouse gas emissions, and sequester carbon. The good news is that we don't have to reinvent the wheel. Agriculture has been an important aspect of Arizona's cultural identity for thousands of years. Solutions already exist, in the history of Traditional agricultural knowledge, small-scale farming, and backyard gardening in the desert Southwest. And producers are innovating and partnering with researchers to experiment with alternative crops and growing practices.

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Tucson and Southern Arizona are surrounded by a diversity of food plants adapted to arid environments that have long been utilized by people for thousands of years. Foods like agave, tepary beans, and mesquite can provide low input, highly nutritious food with a fraction of the water needed to grow crops like cotton or alfalfa. These foods have the potential to create jobs, support ecosystem functions, and improve human health.

The Desert Museum is joining forces with regional partners to help build a more resilient food future. Over the next three years, the Arizona Alliance for Climate-Smart Food will help Arizona farmers do more with less water. Working alongside farmers, the Alliance will identify crops and varieties that are better at growing in the desert, and trial

climate-smart practices like alley cropping and low-till. Additionally, it will provide new markets and revenue streams that help farms cover the costs and gain the economic benefits of using farming practices that lower greenhouse gas emissions and sequester more carbon—all while using less water.

HOW CAN I HELP? Support climate-smart agriculture at your dinner table. Expanding our palates to enjoy a variety of climate-smart foods can help farmers and ranchers adapt to hotter, drier conditions in our region. Bake with me squite flour. Utilize prickly pear. Eat tepary beans. These and many other local crops boost food security and improve health outcomes in our community—all while supporting local farmers and taking less of a toll on the environment. Learn more at <http://www.getclimatesmart.org>

FOOD FOR OUR FUTURE

There is a humble, wild chile pepper that grows in Arizona and Sonora. Commonly called chiltepín, it is the wild relative of hundreds of domesticated pepper varieties grown (and eaten) all over the world. Conserving these wild relatives plays an important role in adapting agriculture to climate change.

The wild chile may seem unassuming. It's a small pepper. On the north end of the Sonoran Desert, plants are often found nestled among larger shrubs and rocks. Most of the year, they are nearly indistinguishable from other bushes. But, in the fall, their spicy, small round chiles ripen to bright red, enticing birds and humans alike.

Crop wild relatives (CWR) are the wild plants closely related to crops. They are often more tolerant of stressful growing conditions like heat,



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drought, and pests than their domesticated cousins. This means that they can be a source of genetic diversity that plant breeders can tap to develop more resilient strains. CWR are also an important link between the natural environment and people—their conservation and use are fundamental to the wellbeing of both ecosystems and people.

The Sonoran Desert is home to many agriculturally and culturally important CWR, including the relatives of domesticated beans, chiles, and squash. Their ability to survive poor soils, heat, and scarce and unpredictable rainfall may hold the key for breeding crops of the future.

Unfortunately, many CWR are under threat and require immediate conservation action. To safeguard their genetic diversity, we need to protect these plants in their native habitats "in situ" where they can continue to evolve with changing climate and pests. And we need to safeguard these plants outside of their habitats "ex situ" in seedbanks and gardens. This requires a trans situ approach that integrates in situ and ex situ conservation efforts.

The Desert Museum is leading an effort to better understand and conserve the CWR of the Sonoran Desert region by documenting important species and developing conservation priorities. Additionally, we are building partnerships between scientists, conservationists, and landowners. Our food security just may rely on these wild and tough desert survivors, and on the people working together to secure our food future.



CONGRATS to Craig!

After 41 remarkable years at the Desert Museum, Craig Ivanyi, our Executive Director, is set to retire in February 2025. Starting as a volunteer and progressing through roles as a Zookeeper, Curator, Associate Director, and finally as Executive Director for 14 years, Craig's journey has been nothing short of extraordinary. From wrangling rattlesnakes to writing book chapters, and from spearheading the development of numerous exhibits to navigating the challenges of a global pandemic, Craig has left an indelible mark on the Museum. As he prepares for a well-deserved retirement, he leaves behind a legacy of a fully realized Master Plan, financial health, and numerous exciting projects in motion.

The Executive Search Committee, guided by DEAI principles and composed of Board of Trustees members, Museum staff, and HRIC Executive Search, our recruiting firm, is actively conducting interviews throughout the summer to identify the ideal candidate to lead us into the next chapter.



Please join us in extending warm congratulations to Craig for his dedicated leadership and outstanding contributions to the Museum and our community!

Take a class! Take a trip!

Adult Classes & Trips with the Desert Museum!

For more details and to register for classes and trips: 520-883-3025 or desertmuseum.org/adultclasses. Prices are 10% more for non-members.



PRICKLY PEAR HARVEST

AUGUST 17 OR 23

August is the season that the beautiful red fruit of the prickly pear cactus ripens. This plant is ubiquitous and edible! Learn how to collect and process the fruit and how it can be used in different dishes. You will also prepare the tender green pad for "nopalitos". **\$65**

NATURAL HISTORY OF THE SONORAN DESERT

OCTOBER 26 AND 27

Dive into the desert and become an expert on the plants, animals, and landscapes of this unique region! This two-day educational experience covers desert ecology, climate, mammals, birds, reptiles, botany, and geology. We will take a plant hike, go behind-the-scenes at the Museum, and have the opportunity to meet live animals! **\$160**



NEW MEXICO: PUEBLO FEASTS, HERITAGE FARMING AND THE ATOMIC BOMB

NOVEMBER 6 - 13

On this week-long tour, ethnologist Jesús Garcia connects social, cultural, historical, and indigenous aspects of New Mexico. Highlights include Los Alamos, the epicenter of the top-secret Manhattan Project, the bountiful Feast Day Celebration at Jemez Pueblo, and the picturesque heritage ranch of Los Luceros, which specializes in traditional crops. **\$3625**

BLACK LAVA / WHITE SAND

DECEMBER 15 - 18

Come explore the interior landscape of coastal Sonora! We'll spend a full day in the Pinacates for an up-close view of volcanic peaks, cinder cones including huge maar craters, varieties of lava flows, and majestic shifting dunes. Visits include the salt fields in Gulfo de Santa Clara, the Center for the Study of Deserts & Oceans (CEDO), and a cultural outing to the sacred lands of the Tohono O'odham community of Quitovac. **\$1350**



RANCHO DE LA OSA

DECEMBER 6 - 8

In the desert grasslands below Baboquivari Peak along Arizona's southern border sits a historical dude ranch. Learn about its history including the Mexican Revolution, cattle barons, Spanish Barb horses, Fr. Kino's explorations. We'll also visit the Buenos Aires National Wildlife Refuge, take a side trip to the border town of Sasabe, sprinkle in geology lessons, and are treated to cowboy poetry and a star-studded winter sky. **\$970**



Summer Garden Game

Match each plant to its place in the garden scene. Draw connecting lines, or even cut and paste!

Crop Plants

This locally adapted "three sisters" combination only needs the water from monsoon rains - amazing!



Tepary bean, bawī, tepari
Phaseolus acutifolius



60-day corn, smoik hu:ñ, maíz de 60 días
Zea mays



Squash, ha:l, calabaza
Cucurbita argyrosperma

Native Plants

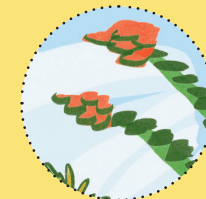
Ever tried prickly pear jam, ocotillo flower tea, or the beans from a palo verde tree? The desert is edible!*



Prickly pear, naw/ i:bhai, nopal/tuna
Opuntia engelmannii



Foothills palo verde, kuk ce:hedagī
Parkinsonia microphylla



Ocotillo, melhog/ hoisig
Fouquieria splendens



*Always get permission and more information before collecting or eating from wild plants.

DONOR RECOGNITION

December 5, 2023 – March 31, 2024



MAJOR DONORS +\$10,000

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Donald Stewart

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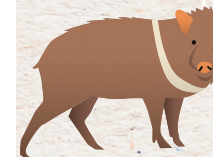
ARIZONA-SONORA
**DESERT
MUSEUM**



Join us every Saturday evening this summer when we stay open late.



Cool Summer Nights are back!



The Desert Museum is lovely during the day, but it's even cooler after dark. This is a fun way to beat the Tucson summer heat, while also learning something neat!



Each week has different theme! Enjoy the fresh air and desert sunset with educational activities, arts and crafts, expert speakers, and more!

The Cool Summer Nights season will wrap up on August 24th with Teacher Appreciation Night.

From Dino Night and Bat Night, to Astronomy Night and Radical Reptiles, there's an evening for every Sonoran Desert interest. *Which night is your favorite?*



Check out the full schedule at www.desertmuseum.org/csn

Open until 9:00 p.m.
SATURDAYS

DESERT MUSEUM ARTS UPDATE

www.desertmuseumarts.com

ARIZONA-SONORA DESERT MUSEUM

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DESERT MUSEUM

The mission of the Arizona-Sonora Desert Museum is to inspire people to live in harmony with the natural world by fostering love, appreciation, and understanding of the Sonoran Desert.



DESERT INSPIRATION, A FLOWING WELLS STUDENT ART EXHIBITION

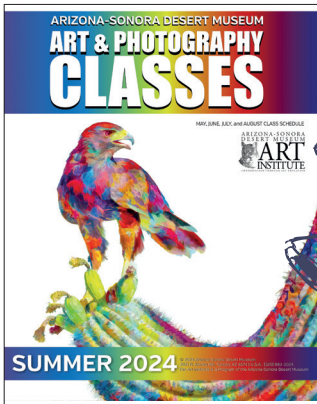
By the Sixth Graders of
Flowing Wells Unified School District

Baldwin Art Gallery

May 25 – August 11, 2024

Daily 9 a.m. – 4 p.m.

Experience the intersection of art and education through the eyes of sixth-grade students from the Flowing Wells Unified School District. This exhibition, inspired by field trip experiences at the Arizona-Sonora Desert Museum and lessons taught by the Museum's Education Team, showcases a culmination of their educational journey. Each artwork reflects a deep understanding and appreciation for the desert environment, emphasizing conservation and respect for nature. Through drawings, sculptures, poems and more, these young artists invite you to explore the beauty and complexity of the Sonoran Desert. Join us in celebrating their creativity and commitment to preserving our natural world..



SUMMER CLASSES

May – August, 2024

Enjoy the surroundings at the Arizona-Sonora Desert Museum while working inside a classroom. We offer individual classes and a Certificate of Completion Program in Nature Art. The unique backdrop of the Museum becomes your classroom, while you draw, paint, or photograph birds, mammals, invertebrates, reptiles, and desert botanicals. You can also participate in a wide variety of classes and workshops including oil painting, nature journaling, mixed media, and photography. Join us!

SEEDS, SAGUAROS AND SKELETONS

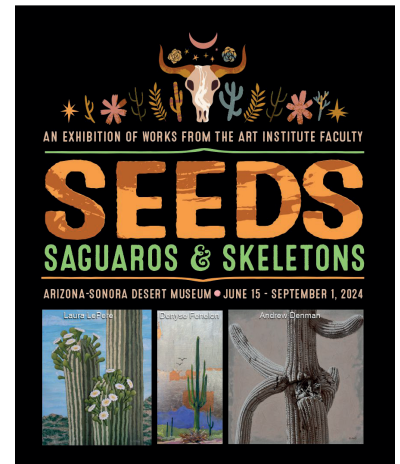
By the Faculty of the Art Institute

Ironwood Gallery

June 15 – September 1, 2024

Daily 10 a.m. – 4 p.m.

The "Seeds, Saguaros and Skeletons" exhibition features the talented artists that make up the faculty of the Art Institute at the Arizona-Sonora Desert Museum. The artworks in this exhibit reflect the intricate biodiversity that defines this arid landscape - seed pods, as vessels of potential and renewal, the haunting beauty of skeletons as testimony to the cycle of life and the majestic saguaros with their towering presence, overseeing the desert through the seasons.



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Graphic Design Manager

The Arizona-Sonora Desert Museum recognizes that it resides within the ancestral homelands of the Tohono O'odham and the multi-millennial presence of the Pascua Yaqui. We honor these tribal nations, and commit to equal-partner relationships as we unite to inspire all people to live in harmony with the Sonoran Desert region.