



Museum Profile

CHIHUAHUAN DESERT RESEARCH INSTITUTE

JEFF DAVIS COUNTY, TEXAS

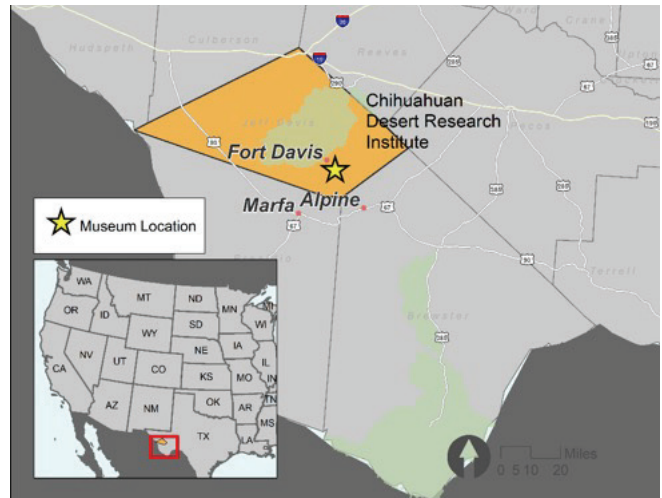
Museum Profile: Chihuahuan Desert Research Institute



JEFF DAVIS COUNTY, TEXAS

The Chihuahuan Desert Research Institute (CDRI) is located in Fort Davis, Texas, which is a large, rural county in West Texas with just more than 2,000 residents. The 507-acre site offers five miles of hiking trails, a desert botanical garden, a native cactus and succulent greenhouse, and a visitor's center with informational exhibits. The landscape is diverse, comprising semidesert grasslands, mountains, a unique riparian canyon, and a year-round spring; in 2018, CDRI's two full-time staff and a cadre of volunteers hosted 13,144 visitors who included tourists, members, school groups, guided tours, and researchers.

CDRI's mission is "to promote public awareness, appreciation, and concern for nature generally and the natural diversity of the Chihuahuan Desert region specifically through education, the visitor experience, and through the support of research." Museum staff realize this mission by offering guided hikes, programs for school-age groups, guest lectures, and workshops for



gardeners and naturalists. CDRI also supports on-site scientific research. By providing both educational programming and opportunities for enjoyment of the landscape itself, CDRI contributes to the social wellbeing of its community.

JEFF DAVIS COUNTY, TEXAS

Jeff Davis County, Texas, is a vast, sparsely populated county situated near the oil fields of West Texas and the US border with Mexico. Three small towns anchor the region: Marfa, Alpine, and Fort Davis. Fort Davis is named for a historic site with structures dating from the 1870s and 1880s, which now sits within a state

park. The median household income is about \$50,174 a year, and the poverty rate is 1.4 percent, as compared to the national poverty rate of 11 percent. The county population is 62.1 percent White, 35.9 percent Hispanic, and only 0.5 percent Black.

| | Population | % Change in Population (2000–2016) | % White | % Black | % Hispanic | % Asian | % Other | Median Household Income | % Families in Poverty |
|-------------------|-------------|------------------------------------|---------|---------|------------|---------|---------|-------------------------|-----------------------|
| United States | 318,558,162 | 13.2 | 62.0 | 12.3 | 17.3 | 5.2 | 3.3 | \$55,322 | 11.0 |
| Jeff Davis County | 2,221 | 0.6 | 62.1 | 0.5 | 35.9 | 0.8 | 0.7 | \$50,174 | 1.4 |

Compared to other rural counties across the country, Jeff Davis County residents enjoy elevated levels of community health, but the K–12 educational sector experiences extremely high needs, reflected in students’ performance across a range of publicly available measures of success. Jeff Davis County fell in the top quartile of rural counties on the Community

Health Index and in the bottom quartile on the School Effectiveness Index.¹ Education Services; Agriculture, Forestry, Fishing, & Hunting; Accommodation & Food Service; and Health Care & Social Assistance represent the largest employment sectors in Jeff Davis County, employing more than 85 percent of all working adults in the county.

| | Total Labor Force | % Education Services | % Agriculture, Forestry, Fishing, & Hunting | % Accommodation & Food Service | % Health Care & Social Assistance |
|-------------------|-------------------|----------------------|---|--------------------------------|-----------------------------------|
| United States* | 131,362,978 | 9.2 | 0.8 | 8.9 | 14.5 |
| Jeff Davis County | 1,056 | 46.0 | 22.0 | 11.0 | 7.0 |

Data Sources: 2012–16 American Community Survey five-year estimates; U.S. Census Longitudinal Employer-Household Dynamics (LEHD), 2017.

*Continental figures for total labor force include the 48 lower states and Washington, DC.

¹ Data elements included in the Community Health and School Effectiveness Indexes, along with measures for Jeff Davis County, can be found at the beginning of Appendix II.

SITE VISIT PARTICIPANTS AND DATA COLLECTION²

The study team conducted phone interviews with three staff members, four board members, and representatives from two partner organizations. Interviews focused on understanding the programming and partnerships that support formal and informal learning in Jeff Davis County as well as CDRI's institutional approaches to assessment and sustainability.

In addition, the following data were used to create the network map included in this profile:

- CDRI 2018 Form 990
- Annual Reports
- Program reviews for several CDRI programs
- Interview notes and related materials collected by the case study team

This site profile includes the following:

- A summary of select CDRI programming and partnerships that support access to formal and informal education and the overall educational capacity of the broader community
- A descriptive network map that illustrates the scope and variety of connections that CDRI maintains with local partners throughout the county and beyond

CDRI'S PROGRAMS AND PARTNERSHIPS PROMOTE EDUCATION AND SOCIAL WELLBEING

CDRI was originally founded as a research institute, but over its lifetime, it has shifted to have a broader public education and outreach focus, placing emphasis on teaching the surrounding community about the desert. One key part of this work is providing access for residents and visitors to hike, explore, learn about, and appreciate the land around them. This involves a spectrum of experiences, one of which is CDRI's guided tours.

CDRI's tours place emphasis on building awareness of the Chihuahuan Desert's fragility and establishing knowledge of climate change's impacts to the ecosystem. They highlight the "beautiful and dangerous aspects" of the vast desert landscape, which a staff member noted is important for residents to understand. Another staff member noted that there are also many ranches in the area that are close

to the environment but may not necessarily understand the specific biodiversity and fragility of it. CDRI draws attention to the ecosystem in a critical way: A staff member said, "It's there to show everyone how important and necessary and fragile this place is," whether that be through classroom outreach, community events, or simply CDRI's network of trails and accompanying informational exhibits.

Public and private schools from across the state visit CDRI, as do adult travel groups, botanical garden groups, and tourists. Trained volunteers conduct tours that include the gardens, where visitors learn about native plants, their importance to the area's ecosystem, and ways in which indigenous cultures used and continue to use them. There are hiking trails with designated educational aspects: places for bird-watching or a volcanic view with a geological

² The CDRI site visit was scheduled for the week of March 9, 2020. The onset of the COVID-19 pandemic delayed the site visit, which was ultimately conducted by phone in June 2020

exhibit and timeline. CDRI is one of the only publicly accessible places in the area to hike and explore nature. In addition to guided tours, CDRI encourages visitors to create their own experiences—the land provides opportunities to disconnect from modern life, return to nature, and relax.

CDRI Provides Hands-on Curricular Support to West Texas K–12 Schools

CDRI functions as an educational center for school children across West Texas. In a county of only 2,000 residents, there are limited educational resources, and school districts cover a wide geographical area. CDRI has partnerships with district superintendents throughout the region that allow it to reach about 4,000 students from grades K–6 and from schools as far as 100 miles away. Its educational programming consists of a series of interactive science workshops on topics like geology and wildlife for school-age children.

CDRI works directly with teachers and superintendents to target their programs to the appropriate grade levels. For instance, in Texas, fifth grade students tend to achieve their lowest grades in science and geology on standardized tests, so CDRI targets programs accordingly through its The Earth Rocks workshop on rocks and minerals. As CDRI's director noted:

"We know the curriculum and what [schools] are expected to be teaching and what kids will be tested on, and we can provide that. It's aligned with state standards . . . and providing an opportunity for hands-on education, which makes the content more real for students and provides teachers with other opportunities to get outside of the classroom."

Staff maintain close collaboration with teachers in the school districts, and schools provide input on the programs after visiting. CDRI sends follow-up letters to school groups that attend, generating further feedback. CDRI can also identify what teachers want in terms of programming: At the beginning of the school year, CDRI sends details of planned programs

to teachers and asks for guidance as to how it can best support curricular alignment. One teacher noted that CDRI was extremely receptive to their suggestions and to what educational communities need, and it tries hard to meet those needs. For example, the fifth grade state assessment includes a section on reptiles; CDRI organized a reptile-themed program for fifth graders before the assessment, and the teacher was able to use the trip and the resulting discussion as an exam review. CDRI tailors programs to specific scientific language and concepts, like geological or biological terms, in a way that enhances state curriculum.

Hands-on programs, whether demonstrating natural processes like erosion or introducing children to the native ecosystem of plants and animals, are important vehicles for both formal and informal education. These programs also fill a critical resource gap; schools do not have the facilities or funds to buy the equipment, props, or the supplies that CDRI provides. Many children come from remote and under-resourced regions of the state, and the opportunity for immersive learning would otherwise be unavailable. Through fundraising, CDRI has been able to waive fees for school children attending these programs.

CDRI Supports Higher Education and Research through Partnership

CDRI also partners with a local university, Sul Ross State, in several capacities. CDRI conducts some of its educational programs in partnership with the university's biology club. This is a mutually supportive collaboration: College students gain teaching experience—conducting experiments and facilitating hands-on interaction—while school-age children gain exposure to the possibilities of higher education.

CDRI continues to function as a research site as well as a nature center, and the university conducts classes, fieldwork, and research projects on the grounds. It is a safe and supportive place for students to both learn about the unique ecosystem and experience the process of conducting research in the field. A university

partner noted that, “The opportunities to teach at CDRI are limitless. The CDRI staff, facilities, and resources are organized in such a way as to lend themselves to assistance.”

University students visit CDRI several times a year to study different types of organisms and experience its diverse habitats. CDRI has also hosted plant identification classes led by its head botanist. Students receive a permit for follow-up research visits, rather than having to pay an entry fee. Previously, graduate students at Sul Ross State worked on a long-term pollination research project at CDRI, and after the area was affected by wildfires, they conducted a follow-up study on the remaining population and pollinators returning to the area. The university also brings students in to support funded research programs that bring doctoral students

to CDRI, and they have conducted a variety of other projects at the site. Typically, the university shares research findings with CDRI so that it can integrate current research into its visitor information, exhibits, and displays.

In terms of continuing education, CDRI has many volunteers who are enrolled in Sul Ross State’s Master Naturalist program and can log volunteer hours at CDRI. CDRI also supports Sul Ross State through a scholarship fund that provides \$1,000 grants to two students annually. Regardless of age or experience level, CDRI’s space activates curriculum, ideas, and lectures; students can interact with the landscape and its variety of habitats without constraints. As one partner remarked, “There’s a hands-on flexibility and interaction with CDRI that you just don’t get with [other places].”

CDRI OPERATES WITHIN A NEXUS OF REGIONAL PARTNERSHIPS, COLLABORATIONS, AND CONNECTIONS

CDRI has strong partnerships with other organizations in the region. The triangle between Fort Davis, Marfa (30 miles southwest), and Alpine (20 miles southeast) is home to a number of educational, arts, and cultural institutions that maintain formal and informal ties with CDRI and that help connect these remote places and their residents to one another. Community members and partner organizations described CDRI as tying the area together:

“CDRI is a little bit the jack-of-all-trades—it touches on so many different areas. Other educational facilities are very focused on just their area and don’t have a broad approach. CDRI, by not being just one thing, they tie places together and have a community bonding effect . . . CDRI is building connections between organizations on a small scale—it’s the glue that holds together other organizations within the broader area.”

“One of the things that ties us together is CDRI and an interest and respect for it, and CDRI is the axis of all that, and I think [everyone] sees CDRI as part of that really interactive group that adds value to the community.”

In terms of tourism, the “triangle” of Fort Davis, Marfa, and Alpine offers enough activities to make dedicated trips to the area viable. CDRI partners with the McDonald Observatory; visitors to the latter receive half-off admission to CDRI. CDRI, the Observatory, and Marfa’s status as a destination for modern and contemporary artists encourage tourists to spend time in an area that otherwise might seem too remote to visit.

This reflects the importance of ties between organizations and businesses in remote, hard-to-reach areas; collaborations are key to making the wider community sustainable. People partner, exchange, and support each other. As a board member stated:

"We're in a small, out-of-the-way place, and everyone's looking for ideas and funding opportunities. So, we ask different societies or places to do this or that, and then we'll help them out in other ways . . . the hotel will send people over to come hike with us or give us a room for our fundraiser, a local feed store here—they'll advertise with us . . . you have to be on good terms with everyone because it's so small and everyone depends on the other for goodwill."

A partner noted that in the county, there is a "small community effect where you really get to know people and build strong relationships." CDRI's reach is broad, and its capacity for supporting local relationships is notable. It engages a multitude of groups, from the local university to garden tours, car clubs, plant and botany enthusiasts, and energy companies. CDRI serves as partner hosts for school district field trips from as far away as Fort Stockton (87 miles away). CDRI's positions within broader networks, and the connections that they facilitate, are the means through which CDRI supports social wellbeing and promote quality of life in its community.

SUSTAINABILITY IN REMOTE PLACES DEPENDS ON ACTIVE COMMUNITY SUPPORT

CDRI's robust volunteer program is a key part of its operational sustainability. A dedicated group of volunteers supports CDRI's work, some of whom are with the Master Naturalist program at Sul Ross State or the local native plant society. These volunteers serve as hiking and bird-watching guides, staff the visitor center and gift shop, and facilitate the school-age educational programs. CDRI also has a host camper arrangement, where volunteers live on-site in an RV in exchange for their help maintaining the grounds. CDRI's volunteer program facilitates shared social connections in a remote area; multiple interviewees cited the close bonds and sense of community that volunteers have created at CDRI. People from different ages and backgrounds all come together to develop and care for the site and to steward that knowledge.

CDRI places importance on supporting its volunteers: It created a volunteer guide document for internal knowledge, and the Master Gardener provides ongoing trainings on native plants and the local ecosystem. CDRI also works to ensure that each volunteer feels appreciated and part of the organization. There is a culture of encouragement and inclusiveness. CDRI's director observed, "We go above and

beyond making people feel part of our mission. It's a thoughtfulness and a mindfulness . . . everything we do is on a very personal level," whether it be hosting dinners and cookouts for volunteers, providing personalized uniforms, or even supplying coffee and donuts at a Saturday morning cleanup. Small gestures of appreciation build a sense of community and connectedness and promote individual and social wellbeing.

In terms of financial sustainability, CDRI has an endowment, made up of money left by the founders, offers memberships, and engages in other fundraising activities. It also receives grants from several foundations. For a small museum, CDRI is financially extremely stable. The former executive director, and current board member, came from a business background and had implemented programmatic and financial practices to ensure the organization would maintain financial stability.

Through its school-age educational programming, research partnerships, and network of trails and informational exhibits, CDRI offers a place for visitors to engage with and learn about the unique environment of the Chihuahuan Desert. It also fosters community

connection in a remote area through its volunteer program and its ties to other regional organizations. The level of support that CDRI enjoys within the wider area points to its role

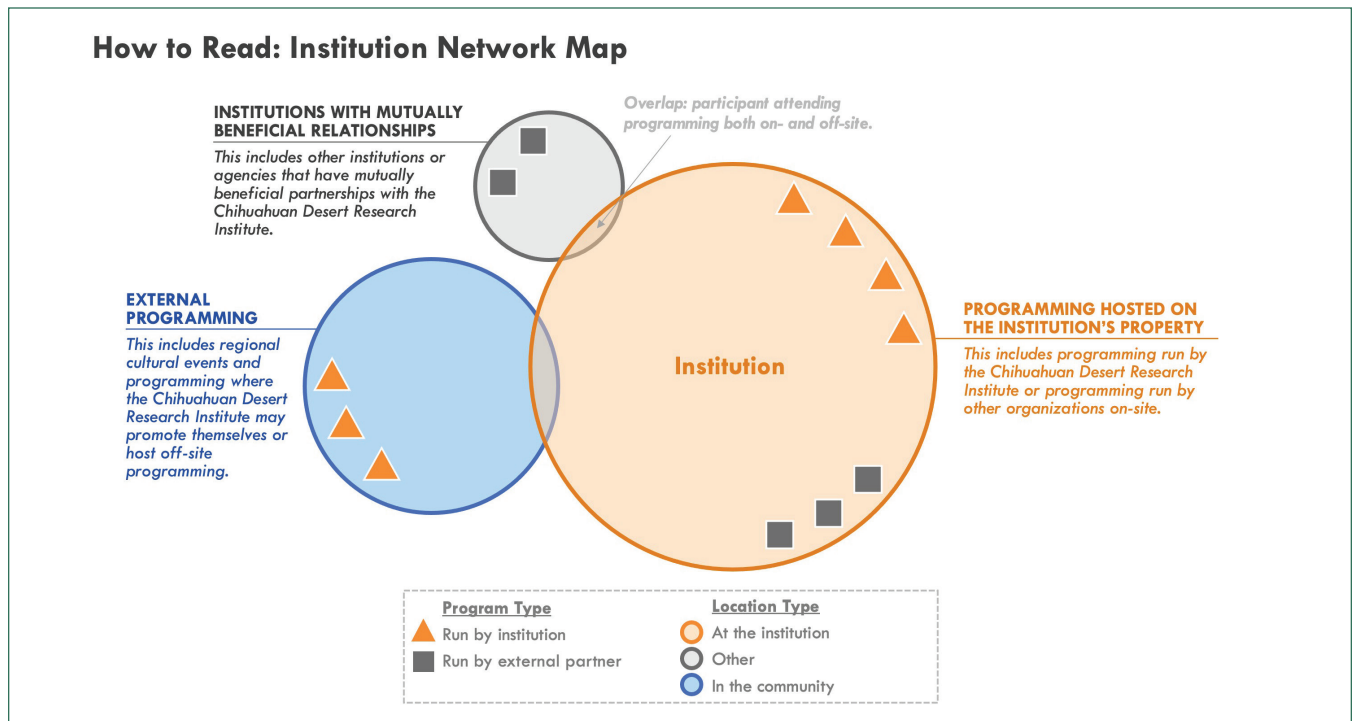
as a valued resource that strengthens both educational opportunity and broader social wellbeing in Jeff Davis County.

CHIHUAHUAN DESERT RESEARCH INSTITUTE NETWORK MAP

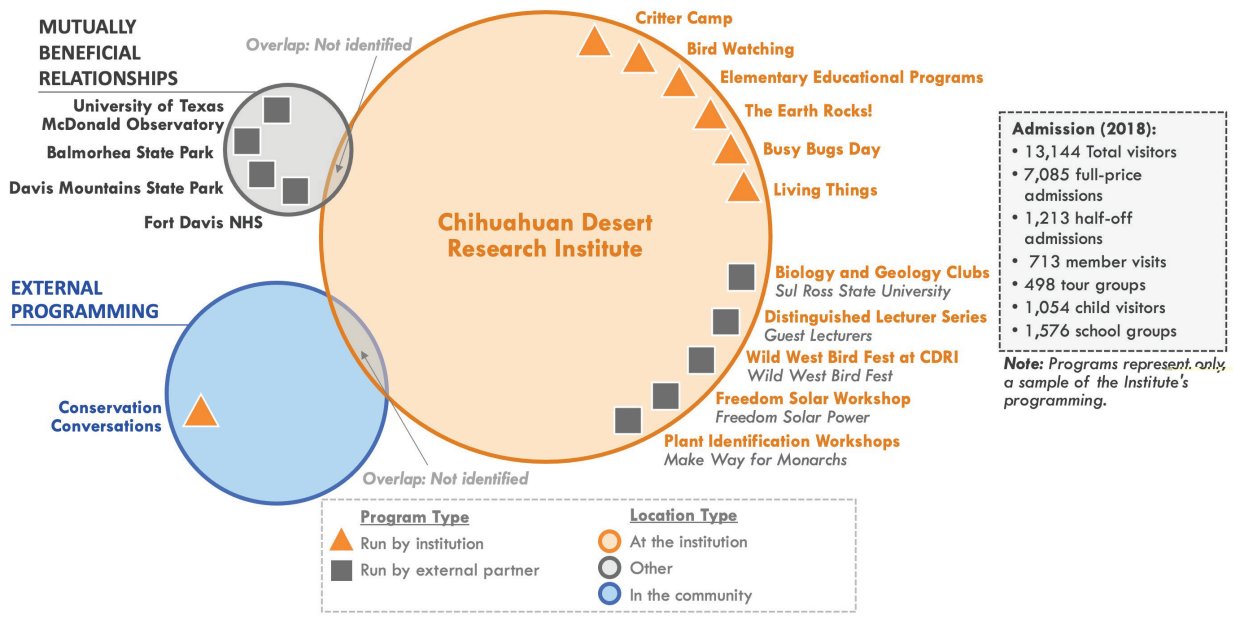
Using data provided by CDRI, the study team developed a descriptive network map to highlight the different types of connections CDRI maintains with other institutions in the local community. The map illustrates the relationships between CDRI and those entities that offer programming at the museum itself and

those that support cross-marketing efforts or have reciprocal relationships with the museum, and it includes examples of off-site, CDRI-led programming. The map does not provide an exhaustive list of the museum’s programs but attempts to illustrate a subset of the relationships that the museum maintains.

NOTE: The network map is purely descriptive. The connections represented on the map do not necessarily, and are not intended to, provide estimates of the duration, durability, intensity, or broader economic impact of the relationships between CDRI and any single entity, or the broader network itself. The goal of the network map is to represent the range and diversity of different types of institutions that connect to the museum in different ways.



Chihuahuan Desert Research Institute Network Map



The figure above illustrates a *sample* of the connections across the programs offered by CDRI. Within the orange circle is a small sample of programs conducted on the physical property—both programs produced by CDRI and those produced by others. Within the blue circle is a sample of programs produced by CDRI and offered off-site in the community. The gray circle represents a sample of connections with other regional organizations that have reciprocal relationships with CDRI.