

Alamo Area Nature Challenge: How We Use Environmental Resources

Brackenridge Park Conservancy
Summer, 2011

The Brackenridge Park Conservancy (BPC) was founded in 2009 to preserve and enhance Brackenridge Park's resources for the use and enjoyment of current and future generations. In 2011, BPC participated in the Alamo Area Nature Challenge by creating a self-guided family-friendly tour--or "mission" for families to accomplish--exploring how human beings have used the natural environment and resources in Brackenridge Park.

Tour elements include:

1. Spanish Colonial Acequia/Dam
2. San Antonio River
3. 19th Century Pumphouse
4. Trabajo Rustico Table & Benches
5. San Antonio Zoo
6. Confederate Tannery
7. Alpine Drive--Stone Quarries
8. Cement Kilns
9. Recycling
10. Xeriscaping

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Address: 950 East Hildebrand Avenue, San Antonio, Texas 78212

Enter the parking lot from Hildebrand. After parking, walk around a low stone wall on the northern end of the lot and head toward the river channel.

You are standing in one of the most important places in San Antonio! The San Antonio River, which rises from springs just a few hundred yards to the north, has attracted and sustained human beings for thousands of years. This river is formed by clean water that flows from the Edwards Aquifer to the surface through artesian springs. Without its water, our city wouldn't exist. Other natural resources that have been important for the growth of our community are also found in Brackenridge Park, such as stone for building. And the park can tell us a lot about human beings use natural resources today--for example, our community's goal to recycle materials whenever possible.

Your mission is to take a self-guided tour of Brackenridge Park that focuses on how human beings over the centuries have used the natural resources they found in what is now Brackenridge Park.

Site #1: Spanish Colonial Dam and Acequias

Although it's a little difficult to tell, the remains of an important Spanish Colonial dam and acequia system on the San Antonio River are just upstream from where you are standing. This dam was built to allow the construction of an acequia, or irrigation ditch. Spanish missionaries and settlers introduced the acequia to this area almost three hundred years ago and used farming techniques based on irrigation. Although the ditches in Brackenridge Park are no longer used to deliver water, part of the acequia system within and close to the San Antonio Missions National Historical Park is still in use.

DEFINITION

Acequia, pronounced "eh-say-key-eh", is an irrigation ditch or channel. The word is from the Arabic al-saqiya, meaning water conduit. Gravity

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keeps the water flowing. Dams and gates are built to divert and hold the water, which is sometimes used to power simple machines like mills.

Look up river toward Hildebrand. From where you are standing, the left bank of the river is the west bank. On that bank you will see a rough pile of rubble covering the original Spanish dam that was made of stones and earth; to the left of the dam is an area where water formed a pond that fed the acequia. The Upper Labor acequia, which flowed through what is now downtown San Antonio, was built here in 1776. During the 1800s, German stone masons expanded and repaired both the dam and the acequia. The metal bridge that crosses the river leads to an important historic site, Miraflores Park, now also a part of Brackenridge Park.

Look behind you, down the river, but also on the west bank. In the 1930s, the federal job program known as the Work Projects Administration or WPA rebuilt the acequia system in the park. You can follow the stone acequia channel from the street level as the ditch leads south. A beautiful bridge that seems to be made of wood but is actually a concrete artwork crafted by Dionicio Rodriguez spans another, larger ditch. This ditch is the 650-foot long raceway that was dug to carry water from the river to the nearby pump house that was part of the city's first water system. As part of the water system, the raceway channel played an important role in the development of San Antonio. Follow the raceway channel until you reach a large stone bridge with two metal gates that were used to control the flow of water. From the roadway atop the bridge you can see Site #2.

QUESTIONS TO CONSIDER--Is an open ditch an efficient or clean way to move water? Where does your family's water come from?

Site #2: 19th Century Pump House

It is easy to take plumbing for granted! You turn on a faucet and clean drinking water comes out; you flush a toilet and waste is whisked

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away. But San Antonio did not have a system for providing water through pipes to houses, businesses and fire hydrants until the 1870s. Before that time, people relied on the river, acequia system and private wells. Look around for a limestone building with four arched windows. The raceway channel carried water under the building where there were turbine engines. The engines pumped water up hill to a giant tank where it was stored. The water was then released through pipes that flowed by gravity down hill and into homes and businesses. The storage tank was located on one of the highest points in the area, where the San Antonio Botanical Gardens are today.

QUESTIONS TO CONSIDER--Why do we store water in water towers? How would your life be different if you had to get all of your water from a ditch or a well instead of from the faucet?

Site #3: San Antonio River

One the south side of the pump house is the main channel of the San Antonio River. Staying on the same side of the river as the pump house, head downstream until you reach the small iron footbridge. From this point, you should be able to see ducks, geese and other birds that make this area their home. For the earliest humans who lived here, the river was like a grocery store. They hunted animals that came to drink and eat along the river, and also found fish, eels, crayfish, and mollusks in the river itself. The river also supported oaks, pecans, mulberries, grapes and many other edible plants. People known as Paleo-Indians began living here more than 10,000 years ago. Later groups of Native Americans continued living here until the 1700s. People who lived here used another park resource, chert (a type of stone often called flint) to make tools such as knives and spear points. Plants and animals provided not only food but also clothing and even jewelry. The land and the river supplied everything these peoples needed for daily life.

Later Spanish and Mexican settlers used the river's water for agriculture, cooking, bathing and cleaning, as well as industry. Water-

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powered mills ground grain to make flour. The river also met another important need--sanitation. In the days before sewage treatment plants, human and animal waste was typically dumped into rivers and streams.

QUESTIONS TO CONSIDER--What happens to the quality of the water in the river when it is used as a sewage system? Would you want to live downstream from a big farm or a city?

Site #4: Trabajo Rustico Table and Benches

Continue to follow the river as it makes a broad turn. The fence to your right is the edge of the San Antonio Zoo. As you come around the bend, you'll see the bridge that carries the train across the river and, just to the right, a wooden bench and a thatched umbrella. Or are they wooden? This bench and umbrella are actually made of a type of cement, and they are the work of renowned artist Dionicio Rodriguez, who also created a number of other artworks in the park in the 1920s and 1930s. A secret process allowed him to shape light fixtures, benches, tables, gates, bridges and other pieces that look like wood but are not; this type of artwork is called *trabajo rustico* or *faux bois*.

QUESTIONS TO CONSIDER--What advantages does cement have over wood and thatch as a building material? What disadvantages?

Site #5: San Antonio Zoo and Koehler Pavilion

Continue to follow the course of the river, keeping the zoo on your right. Stop in the shade just past the Zoo's Education Center (be careful here, there are cars). You'll see a large white picnic shelter close to the river. This is the Koehler Pavilion, built in 1925. Animals that were kept in another part of the park were moved to this location in 1915 to create the San Antonio Zoo. Before that time, much of the area you've just passed through was a privately-owned "pleasure garden"--an area north of the city where residents could escape to

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cool green gardens and enjoy entertainment and refreshments. After the land was given to the City of San Antonio, the Koehler Pavilion and the San Antonio Zoo carried on that tradition of using this area for recreation and enjoyment.

QUESTIONS TO CONSIDER--How do people use the natural environment of Brackenridge Park for recreation today? What has changed over the past 100 years?

Site #6: Confederate Tannery

Continue walking, keeping the zoo fence on your right. You will pass another small pavilion and then will see a Texas Historical Marker on your left. During the Civil War, Texas seceded from the United States and joined the Confederate States. The marker's text will tell you about the role this site played in the war effort. Think about the natural resources that were needed to feed, clothe, arm and move an army, and about the industries that produced these goods.

DEFINITION

Industry. One definition of industry is economic activity concerned with the processing of raw materials and manufacture of goods in factories. Raw materials are often natural resources: wood, clay, metal ores, and animal and vegetable products.

QUESTIONS TO CONSIDER--What natural resources are used to generate power for industry? Which of those would have been used in 19th century? Which were dominant in the 20th century? What power sources do you think you'll rely on in the 21st century?

Site #7: Alpine Drive--Stone Quarries

Turn right as you approach the traffic circle at St. Mary's and Tuleta. Cross Tuleta Street in front of the zoo entrance and proceed along the paved road called Alpine Drive that leads up the hill (this road is chained off to prevent vehicle access, but it's okay to walk here). On

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your left is a curb painted red and on your right is a short flight of stone steps. As you walk uphill, notice that the plants are different and that it is drier and hotter than it was near the river. This area is a limestone plateau (or flat, elevated area) marked by an escarpment to its north and the remnants of limestone quarries along its east face. On the left or east side of the path you will enjoy a great vista of downtown San Antonio, as well as views down into former stone quarries that now house the Japanese Tea Gardens and the Sunken Garden Theater.

DEFINITION

Escarpment, a steep slope or cliff resulting from erosion or faulting that separates two relatively flat areas of different heights; most often marks a transition from one area of sedimentary rock to another.

Limestone, a sedimentary rock, is a very useful building material because it is relatively easy to cut (or quarry) but many types then harden upon exposure to air. Well-known early buildings in the San Antonio area constructed of limestone include the Spanish missions, such as the Alamo and San Jose; the Quadrangle and clock tower at Ft. Sam Houston; and many of the structures in La Villita. The City of San Antonio owned this quarry and continued to cut stone here for local use into the early 1900s. When quarrying was stopped, the old quarry pits were converted into the animal enclosures at the San Antonio Zoo (1915), the Japanese Tea Gardens (1917), and eventually the Sunken Garden Theater (1930).

QUESTIONS TO CONSIDER--Can you name other San Antonio-area attractions that are located in former quarries?

Site #8: Cement Kilns

Continue along Alpine Drive as it starts to descend on the south side of the Sunken Garden Theater. You may have to walk around a locked gate that prevents cars from entering at the bottom of the drive. Turn to your left and head north to the Japanese Tea Gardens. Between the

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Tea Gardens and the street to the east, which is St. Mary's, you'll find a small parking lot and a curving drive that leads to the next site.

Locate the historical marker that describes the business that once operated here. The large structure behind the marker is a kiln; it was used to "burn" limestone and clay, along with other minerals, at temperatures of up to 1450 degrees F. This mixture was then ground up and used as a building material by adding water. The mixture was known as Portland cement and is still a basic ingredient in concrete, mortars and other products.

QUESTIONS TO CONSIDER--How many different natural resources does it take to produce and use Portland cement? What kind of fuel do you think was used to heat the kilns?

Site #9: Recycling Containers

Follow the curved drive down past the stone walls and turn left onto St. Mary's Street. As you walk back toward the zoo, notice the blue recycling bins at the picnic sites on your left. One or two thousand years ago, if you'd eaten a meal in the park, you would have left your trash on the ground or thrown it onto a pile of other garbage near your campsite. Animal bones, mollusk and snail shells, broken tools, and other trash was often left in heaps that archaeologists call middens. Studying middens can tell us what ancient people ate, how they made their tools, and even how they hunted and cooked their food.

DEFINITION

Middens are places where people dump trash from their daily activities. Sometimes soil and climate conditions allow bits of plants and even animal waste to be preserved. In other cases, this bio-degradable garbage decomposes into soil over time. Often what is left are more durable materials like shells, stone, bone, teeth, and pottery.

Not so long ago, modern human picnickers might have done the same thing--left a heap of garbage after finishing their meal. Rather than

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bones and plants, today's garbage is often materials that are manufactured from metals and plastics which are not bio-degradable and can harm animals and the environment. Many of the resources used to manufacture food packaging are increasingly scarce and expensive. Finally, the landfills where all that garbage is buried are getting full. So, today's picnickers are encouraged to recycle materials like aluminum cans, plastic water bottles, and clean cardboard containers. As a rule, you can recycle any plastic material with the recycling symbol and the number 1, 2, 3, 4, 5, 6, or 7.

QUESTIONS TO CONSIDER: Do you recycle? Think about your garbage can at home. What do its contents say about what your family eats, wears, or reads?

Site #10: Xeriscaping

When you reach the traffic circle in front of the Zoo, take a closer look at the plants inside the circle. Many of them are native to this area or to even drier regions, so they can grow with little rainfall or watering. On average, San Antonio receives about 33 inches of rain each year, but the least amount of rainfall ever recorded in one year was just 13 inches, and months may pass with no or very little rain. The lack of predictable rain, combined with San Antonio's hot temperatures, means that lawns and gardens can use up a lot of water. About 20 percent of the water used in our area goes to irrigation. San Antonio relies on a large underground reservoir called the Edwards Aquifer for water, but is now looking for other water sources in order to ensure that we will have enough water in the future. Policies adopted by local governments also encourage water conservation.

DEFINITION

Xeriscapes are created with drought-tolerant plants and designed to conserve water. This new word that was introduced in the 1980s is based on the Greek "xeros," meaning dry.

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QUESTIONS TO CONSIDER: What kind of plants grow in your yard or the landscaping near where you live? How else can you conserve water?

Congratulations--you have completed your Mission! You can pick up your mission sticker from a key safe at the Brackenridge Park Conservancy office, which is located close to Site #2, the 19th Century Pump House. The GPS Coordinates of the office are. You will see a key safe attached to the metal grillwork located to the left of the office door. The key safe code is all the numbers of plastic that can be recycled! Push in the pin next to each number and then slide the black button down. Please replace the key safe and its cover after taking your sticker. Thank you for visiting Brackenridge Park. If you'd like to know more about the park or the Conservancy, our website is www.brackenridgepark.org.

FOR MORE INFORMATION, these books are available at the San Antonio Public Library--

Cox, I. Wayne. *The Spanish Acequias of San Antonio*. San Antonio, Tex. : Maverick Pub., 2005.

Fisher, Lewis F. *River Walk : The Epic Story of San Antonio's River*. San Antonio, Tex. : Maverick Pub. Co., 2007.

Light, Patsy Pittman. *Capturing Nature: The Cement Sculpture of Dionicio Rodriguez*. College Station: Texas A&M University Press, 2007.

Sibley, Marilyn McAdams. *George W. Brackenridge: Maverick Philanthropist*. Austin : University of Texas Press, 1973.