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Special thanks to Catherine Stier

WELCOME TO FRIEDRICH WILDERNESS PARK!

The Outdoor Explorers backpack offers you and your child a hands-on experience and encourages young wilderness enthusiasts to dig deeper and explore nature in new ways! Backpacks are designed for children ages 4 and up with parental supervision, and may be checked out during park hours with a reservation. Remember, you may not find all of these items along the trail, but this backpack provides a sampling of natural objects to look for while exploring the park.

*Please do not collect rocks, flowers, leaves or anything from the trail. Remember to preserve this area for wildlife and other visitors and kindly “Leave No Trace.”

HAPPY HIKING!

LIVE OAK ACORN

You probably recognize this little nut! Acorns are the fruit or nut of an oak tree. The plateau live oak acorn was a very important source of food for Native Americans as it contains fiber, fat, protein, and carbohydrates. Some native groups made acorn meal from the endosperm, or “meat” of the acorn, while others used acorns as an ingredient for their bread baked in earthen ovens in the ground. Many mammals including squirrels and deer eat acorns, and the acorns that don’t get gobbled up sometimes sprout up to be large oak trees. **Look for a live oak tree in the park and sketch the shapes of the tree in the sketchbook provided.**

LICHEN

Lichens are pioneers—the first organisms to cover bare earth and rocks, but they can also be found on tree bark. Lichen is a combination of a fungus and an alga, and no two are alike! While the fungus absorbs and stores water, the alga uses sunlight to make food for both. It is a symbiotic partnership, meaning each benefits from the other. Look closely at this lichen—what colors do you see? Historically, lichens were used to create natural dyes in shades of brown, gray, yellow, and even purple and red. **Look for lichens in the park. What kind of shapes, textures, and colors can you find?**

OAK GALL

This tough little sphere, known as an oak gall, once protected a young insect. Many types of insects such as gall wasps or gall gnats lay their eggs on the branches or leaves of live oaks and introduce a special chemical to the tree which pushes the plant's growth hormones into overdrive. As a result, the tree tissue forms a spherical structure that becomes the home and food source for the egg, larvae, and pupae stage of the insect's life. When the timing is right, the insect chews its way out of the oak gall. A single tree may be host to dozens of types of galls, each one caused by a specific organism. These "homes" are full of tannins, which make a good quality ink. In fact, the Declaration of Independence was written in gall ink!

Can you spot an oak gall on the ground or in an oak tree? Notice different shapes, sizes, and colors.

MEXICAN BUCKEYE

The Mexican buckeye is not a true buckeye tree, but can you guess how it got its common name? This small, flowering tree produces seeds that resemble the eye of a buck, a mature male deer with antlers. The unusual three-lobed seedpods contain three dark brown seeds. Pioneer children often played games with these marble-like seeds. Native Americans found that toxic chemicals from the buckeye seeds would stun fish, causing them to rise to the surface to be easily caught. Also referred to as *ojo de venado* in Spanish, some believe the buckeye seeds to be a good luck charm or magical protection against the evil eye. **Can you find a buckeye tree? Hint: look for the seed pods hanging from the branches.**

MESCAL BEANS

Pause on the trail and take a deep breath. Did you sniff a scent of grapes? Then you may be near a Texas mountain laurel tree known for its powerful grape-like smell. Although its scent packs a punch, it only lasts for a couple of weeks in the early spring. These trees are also commonly known as mescal bean trees. Be careful—the bright red mescal bean seeds are poisonous if chewed. In the past, mescal beans were used by Native Americans as a hallucinogen for ceremonial purposes. The seeds are considered good luck charms and strings of them were often traded. These smooth, brightly colored seeds were also worn as jewelry or used to adorn clothing or decorate warrior dolls.

TEXAS PERSIMMON

Texas persimmon trees have unusual bark that makes them easy to spot! The smooth, thin, gray bark often flakes off in large layers revealing subtle gray, white, and even pink colors. The fruits are green and turn black or dark purple when ripe, and are a sweet-tasting treat for coyotes, raccoons, and other animals. Don't get persimmon juice on your clothes—persimmons are used as a black dye for clothing in Mexico. The strong, dark heartwood of the tree may be fashioned into furniture, fine carvings, and even golf clubs. Male and female flowers grow on separate trees—this is called dioecious. **Look for a mature persimmon tree and sketch the shapes of the tree trunk.**

TREE 'COOKIE'

By closely examining this tree "cookie," you can learn about this tree's life story! Tree ring dating, also called dendrochronology, is the scientific method of dating tree rings (also called growth rings). This cross section of a tree shows the growth rings surrounded by the bark. The rings of some trees can be counted to see how old the tree is, but the rings also tell us so much more than age. Differences in growing conditions and weather, including drought seasons, can impact the rings' width and shape. Evidence of fire and insect damage can sometimes be detected, too. **Using the magnifying glass, study the tree cookie to determine the age of the tree and other details that tell you about its history.**

BALL MOSS

This clump of ball moss may be shaped somewhat like a ball, but it is not a moss at all—it is, instead, a flowering plant. A member of the pineapple family, ball moss is an epiphyte. Epiphytes are plants that attach themselves to limbs, tree trunks, power lines, fences, and other structures for support. It draws its food and water from the air, and thrives on high humidity and low light conditions. Unlike mistletoe, it is not a parasite and does not usually harm the tree—it just perches on a branch as a place to park! Since ball moss often harbors bugs, many small birds seek it out for the tasty insects inside. **Look for ball moss in the park. On which types of trees do you see ball moss most often?**

RED OAKS

This red oak leaf can be distinguished from a white oak leaf by the bristles on the tips of the lobes. The red oak's reddish-brown acorns take two years to mature and are more bitter than white oak acorns, which mature in one year. This leaf is from a Texas red oak, also known as a Buckley oak, named after Samuel Buckley (1809-84), a member of the Shumard Geological Survey. Buckley was a geologist for the state of Texas and later served as President of the Academy of Science of Texas. If you are visiting the park in autumn, you are in for a treat—the leaves of this tree turn vivid shades of red and orange in the fall. **Look for a red oak tree and notice the colors of the leaves.**

WHITE OAKS

Look closely at this white oak leaf. Can you see how it is different from the red oak leaf sample in this backpack? Notice the leaves do not have bristles at the tips of the lobes. This leaf is from the lacey oak tree, a type of white oak that has thick oblong shaped leaves with wavy or slightly lobed margins. The lacey oak tree grows in areas with rocky limestone soil (for more on limestone, see the sample in this backpack) such as the southwestern parts of the Edward's Plateau region, as well as northern Mexico. The tree's small acorns are typically found in clusters of 1 to 3, and animals including white-tailed deer, small mammals and and some birds feed on the acorns. **Can you find a lacey oak? Hint: Notice the foliage is peach-colored in the spring and fall, and grayish-green in the summer.**

GRASSES

Grasses and weeds are the bandages of the earth, and give first aid to wounds on the earth's surface where bare soil is exposed. Grasses also help stabilize the soil and add organic material as they decay. Did you know that Texas has its own official state grass? The side-oats grama, a sample of which is provided here, received this designation in 1971. If you look closely at the park's side-oats grama in the springtime, you will find purplish-colored, oat-like spikelets that grow on only one side of the stem. These spikelets turn brown or tan in the fall. As you walk the trails, look for side-oats grama and the seed heads of several grasses.

How many different types of grasses can you find? How are they different from side-oats grama?

LIMESTONE

Can you imagine the place you are standing now awash in ocean waters? Limestone, such as the sample provided here, can be found all over the Hill Country and was formed millions of years ago when a large ocean covered this area. Limestone is a sedimentary rock formed when fragments of rocks, coral, and mollusks accumulate underwater, and are eventually compressed into rock by the weight of overlying materials. Sometimes limestone has observable fossils, visible as the remains or imprint of something that existed long ago. The Edward's Aquifer, our primary water source, is also made of limestone, and it is porous, meaning it's full of holes.

Can you find a fossil in a limestone rock?

ASHE JUNIPER

Ashe junipers (or mountain cedars) are the most common trees in Friedrich Wilderness Park. While many animals, birds, and insects use juniper bark, this tree is especially important for the success and survival of the endangered golden-cheeked warbler. These rare birds nest only in Central Texas, and must have strips of juniper bark in order to build their nests. In fact, golden cheeked-warblers appear to be unable to build their nests without Ashe juniper, which makes the presence of these trees essential to the warbler's survival. Did you know the blue juniper berries found on the female tree are actually miniature cones? Raccoons, coyotes, cedar waxwings, and other animals and birds consider juniper berries a tasty treat. The male juniper produces the pollen that causes 'cedar fever,' or allergy symptoms that some people experience. **Look for the blue berries along the trail or under the Ashe juniper tree.**

CHERT

Note the sharp edges and sturdiness of this piece of rock, and you may understand why it was a material favored by prehistoric people for fashioning tools. This is a sample of chert, also known as flint, a sedimentary rock made of cryptocrystalline and microcrystalline quartz. Chert may be gray, black, brown, or yellow in color and it is commonly found embedded in the limestone of this area. Not only is chert a hard stone but it also forms sharp edges when broken, making it an ideal material for stone tools. Prehistoric people became highly skilled at flintnapping—a method of shaping the flint/chert into drills, knife blades, and spearheads. **If you look closely, you might find chert along the trails.**

COCHINEAL

Keep a lookout for these cactus-dwelling insects. The cochineal (coe-chin-eel) is a female scale insect used to make a vivid, crimson red dye that adds color to clothes, makeup, and even food! This insect lives on the prickly pear cactus and produces carminic acid, a red-colored chemical that wards off predators. In Latin America, cochineal dyes have been produced for more than a thousand years. Both Incan and Aztec textiles, and the British "Red Coat" military uniform once bore the color of the cochineal dye. When the Spaniards arrived in the Americas in the 1500s, they began exporting cochineal, which became Mexico's second most valuable export after silver. Cochineal is still produced in Peru and Mexico for textiles.

When looking for cochineal, look for the white 'fluff' on cactus, but don't try to remove it because you might get poked!


THE OUTDOOR EXPLORERS