

their moisture slowly. Alligator juniper trees are dioecious—male and female cones are produced on separate trees. Relying on the wind to ensure reproduction, mature male trees produce copious quantities of pollen in the spring.

#6 Contrasts

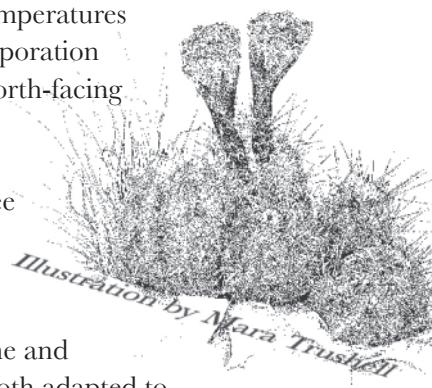
Standing here, looking at the trail marker, you face east. Now notice the contrast found on slopes that are south-facing (i.e., the hill behind you) and those that are north-facing in front of you. The chaparral vegetation takes advantage of the south-facing slope, where the intense heat of June and July limits survival of other species. Scattered ponderosa pine that once stood on this hillside died during the drought stresses of 2002, but the chaparral vegetation continues to thrive.

The cooler temperatures and lower evaporation rates of the north-facing slope allow communities with larger tree species to develop.

Notice the ponderosa pine and Emory oak, both adapted to cooler moister conditions, have survived on the north-facing slope.

#7 Stretch-Pebble Conglomerate

The trail you walk, which we call the Stretch-Pebble Loop Trail, is named in honor of the remarkable geologic formation you see here. When the volcanic and sedimentary rocks were originally deposited in this area, there was a hiatus (a break



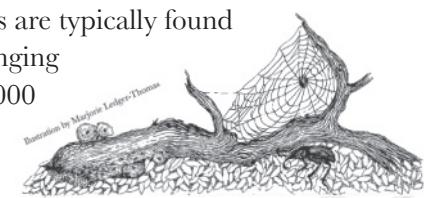
in the continuity of the geologic record) during which time an intra-formational conglomerate was laid down. As erosion occurred, the softer particles were removed by stream action, leaving a concentration of pebbles of more resistant red jasper, white quartz, and harder rock—the pebbles in our Stretch-Pebble Conglomerate. After about 1.75 billion years, tectonic forces took their toll, the original sub-rounded pebbles were “stretched” and distorted into the long rod-like shapes you see in this rocky outcrop today—leaving us one of the best exposed examples of this formation in the world.

#8 Chaparral: Survival in an Extreme Environment

“El chaparro” in Spanish means the evergreen scrub oak. The tenacious and somewhat volatile plants of the chaparral include many species that exhibit characteristics that allow them to survive here. They tend to be deep-rooted and sclerophylllic (leathery and generally small leaves). Roots follow moisture deep into the rocks and earth, leaves lose less moisture to the hot, drying winds, and withstand severe winters. Manzanita is an excellent example of a plant with this strategy.

#9 A Forest Finds its Balance

Ponderosa pines are typically found at elevations ranging from 5500 to 8000 feet. The moist north slopes and drainages provide the best habitat for ponderosa on the Lynx Creek Site.



In 2001 a dramatic increase in ponderosa mortality began to occur throughout the highlands. A

series of years with very low rainfall, past forest management practices, and an increase in activity of the naturally occurring Ips bark beetle destroyed pockets of trees and continuous stands of ponderosa pine. Although this change is unpleasant to witness, the forest is finding its balance.

The End of the Trail

As you walk along the trail, look for plant adaptations for this environment (tiny leaves, no leaves at all, thick waxy coatings, tiny white hairs that help reflect the sun, spines, and prickles) and the “choice” of habitat plants make.

Continue on this trail to finish the Stretch-Pebble Loop Trail; then follow the signs back to the Highlands Center Campus or explore our other trails. Appreciation of the qualities of our various plants has much to teach us: things such as endurance, patience, and perseverance.

We hope you have enjoyed this introduction to the Lynx Creek Site. For more detailed information on geology, and the plants and animals that live in the highlands, please visit our Benson Family Nature Store.

Your further interest in the Highlands Center for Natural History or any donation will help support our outdoor, science-based, hands-on programs focused on this amazing region.



Highlands Center for Natural History

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The Highlands Center is a not-for-profit, membership-funded organization. Hiking trails are open to the public year round. Donations are appreciated.

Please Return



Highlands Center for Natural History

Stretch-Pebble Loop Nature Trail

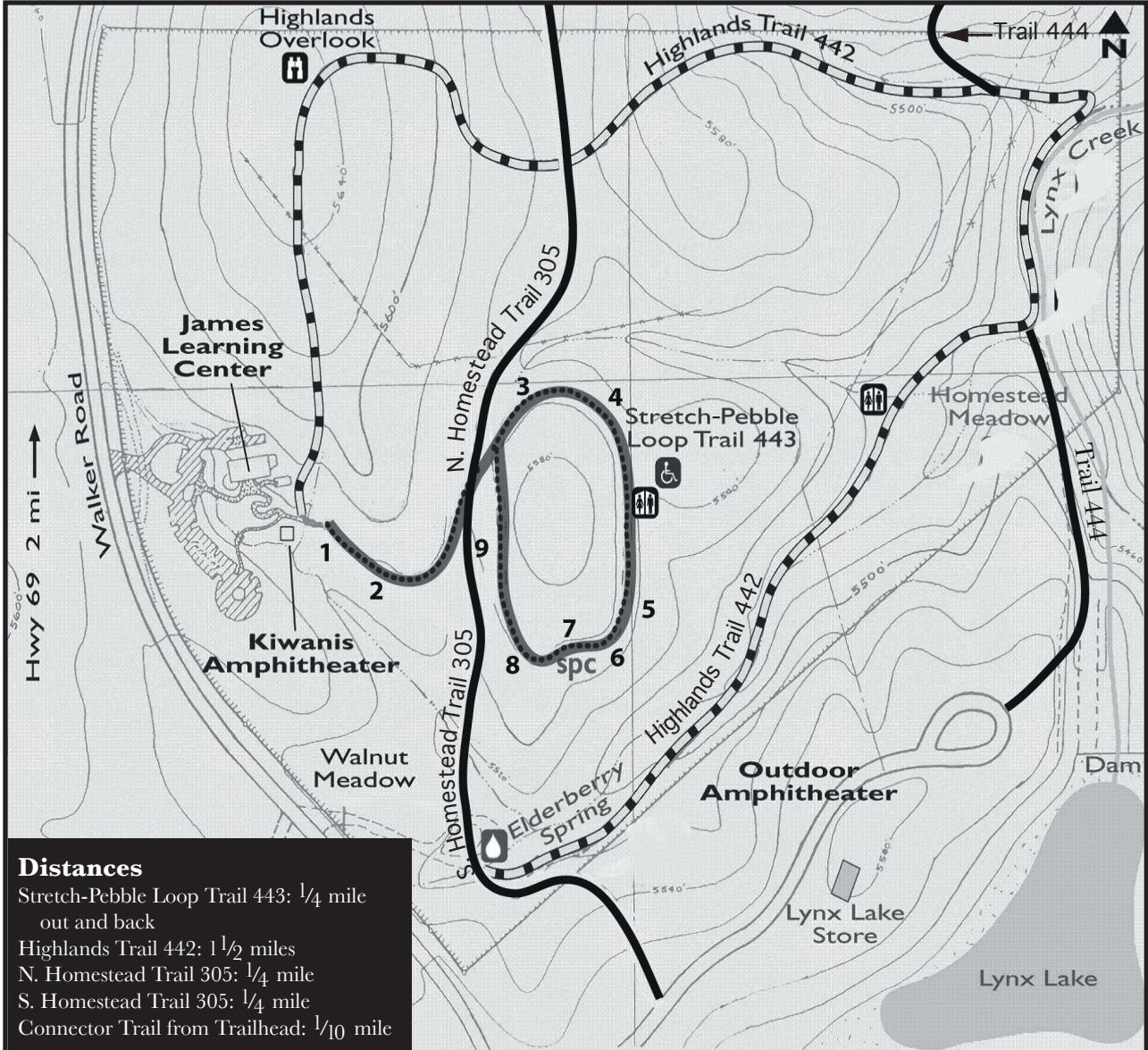


Welcome to the Highlands Center for Natural History—This handout will guide you along the Stretch-Pebble Loop Trail, which is 1/4 mile out and back. Watch for the numbered posts along the trail that match the information in this handout. This trail is handicapped accessible.

The Highlands Center for Natural History helps children and adults discover the wonders of nature and become wise caretakers of the land. We believe that everyone has a fundamental need to connect with the natural world. This connection is fostered by the Center through outdoor science education based on observation and discovery of the Central Arizona Highlands.

Introduction

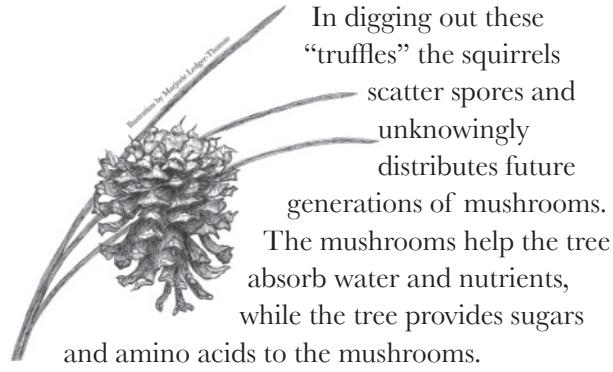
Here on the 80 acres of the Highlands Center's Lynx Creek Site you will find a microcosm of the Central Arizona Highlands Region—a transition zone between the southern and western Basin and Range deserts and the Colorado Plateau to our north.



#1 Our Oak Woodlands

Four wonderful species of oak make their home on our site: the Arizona white oak, Emory oak, Gambel oak and scrub oak. The Arizona white oak is the largest of these. It has a massive, often twisted, trunk and may grow more than 50 feet tall. The Emory oak, which may grow as tall as the Arizona white oak, is straighter with shiny

leaves. It can form a broad crown. The deciduous Gambel oak is common at higher elevations in the mountains of the highlands. You will find it in very shaded, protected spots on our site. The tenacious scrub oak can be found on the hottest, sunniest areas of the site and is able to survive the drier, hotter environments found in our region.



#2 Cycles and Change

After the Ips beetle kill of 2002, large areas of dead ponderosa pines stood throughout the site. Trees near trails were felled. Some were removed for lumber and other uses. As you walk along the trail, however, notice a number of standing dead trees (snags) and downed logs that were left behind. Both are rich with life and are critical habitat in the forest environment.

Snags provide homes for a wide variety of animals. Although ponderosa snags produced by an Ips beetle kill may come down quickly, a large ponderosa snag killed by lightning can stand for decades. Once any of these trees fall, however, they provide years of refuge for chipmunks, deer mice, a variety of insects, spiders, scorpions and other small creatures.

#3 Ponderosa Pine and the Abert's Squirrel

A Story of Interdependence

Abert's squirrels and ponderosa pines have developed a symbiotic relationship. In the spring, the squirrels gorge on the clusters of pollen-swollen male cones. Then, dusted with pollen grains, they move on to the sticky green female cones and feast on the seeds they contain, thus aiding in successful pollination.

Abert's squirrels also feed on fungi that sprout in the deep needle litter at the base of the ponderosa.

#4 A Precious Watershed

The small drainages that you see around you channel rainfall to Lynx Creek. Thus you are currently standing in what is known as the Upper Agua Fria Basin. This basin is part of an even bigger watershed that is the Colorado River watershed. Plants and wild animals need the water to soak into the ground here, rather than run off and head farther downstream.

#5 Alligator Juniper

Magnificent Elder of the Woodland

The logo tree of the Highlands Center is the alligator juniper. Up the hill you'll find a mature tree. Behind you is a young one. Look for the tiny scale-like leaves of the tree—these are held tightly clustered so they will lose

