Zion National Park News

National Park Service
U.S. Department of the Interior

Nature Notes

Zion's Secret Gardens: A Caretaker's Dream

I have a confession to make. I don't care for gardening. Don't get me wrong—I love beautiful landscaping. Fortunately, because I work in Zion (a protected, natural selection setting) desert adaptations serve as my gardener. I never turn on a sprinkler. I don't have to wrestle a hedge trimmer or clippers. And eliminating weeds? That's best left to our vegetation team; they live to whack, burn, and spray those unyielding mavericks.

Zion's breadth and range of blooming beauties number over 1,000. Will I find that many choices at my local nursery? Probably not.

This spring, I discovered a floral display that graced a gentle Moenave slope across the road from our Emergency Operations Center. Walking over to "my" new-found patch, I began to wonder: why did these particular plants choose this particular place? It turns out, specific soils hold the key. Zion's native crops have evolved defense mechanisms that are so brilliantly balanced, commercial growers wince when they realize the amount of time and money they've spent trying to replicate what nature came up with on her own. Meandering through these Zion varietals, I make a beeline toward a shrub that is immensely aromatic and bee-friendly: Dorr's sage (*Salvia dorrii*) from the mint (Lamiaceae) family. As a tea, it eases a sore throat and troublesome sinuses. The bush thrives on loose, nutrient-poor soil and little water. And talk about a heady scent… gently rub a leaf between your fingers and take a whiff. See how the purple whorls dance around the square stem? It's so beautiful, it should be outlawed.

I saw several desert paintbrushes (*Castilleja chromosa*), part of the figwort (Scrophulariaceae) family. These spiked, sneaky souls have mastered an ingenious plan to absorb nutrients that don't belong to them—hemi-parasitism is their game. They sidle up to and under (in this case) sagebrush and attach their roots to their neighbors' to siphon food. Red modified leaves called bracts stand at attention, hoping to lure in a passing black-chinned hummingbird.

The Dorr's sage (foreground) prefers the hot and dry lower elevations in Zion. In the background are the red and showy modified leaves of the desert paintbrush. Photo by Robin Hampton

Less abundant in my secret patch are splashes of bluedicks (*Dichelostemma pulchellum*) and a sinuous mariposa (*Calochortus flexuosus*)—lovely lily (Liliaceae) specimens. The latter, with its grass-like leaves and edible bulbs, made this delicate "butterfly" (mariposa means butterfly in Spanish) a favorite springtime staple for Native American cultures throughout the Southwest.

The sunny prince's plume (*Stanleya pinnata*) of the mustard (Brassicaceae) family embraces selenium in the soil. This royal plant can accumulate so much of this element, it becomes poison to livestock. Native animal species won't touch it. Plants

Zion's gardens grow at many elevations—from low level desert washes to high plateau aspen meadows.

that keep high amounts of selenium in reserve are protected from many invertebrate herbivores: moths, aphids, and other pests. Prince's plume can absorb selenium to levels 1,000 times greater than what is in the

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What's Roaming in Zion?

Porcupines *(Erethizon dorsatum)* are observed by visitors at night "waddling" along the road in Zion Canyon. Dubbed "serial quillers" by one of our rangers, adult porcupines are well defended by over 30,000 one- to four-inch quills. The babies—called porcupettes—are born with a tiny arsenal of soft quills which harden within one hour of birth.

Mexican Spotted Owlettes *(Strix occidentalis)* are fluffy bundles of soft, gray feathers that can only be called "cute." Many visitors used this word to describe the two that were seen perched for several weeks in Refrigerator Canyon on the way to Angels Landing. Their parents perched close by and were heard calling and seen actively feeding on wood rats. Zion provides critical habitat for this threatened species and has received global recognition for its large number of protected, breeding pairs.

Gray Fox *(Urocyon cinereoargenteus)* sightings have been abundant this season. Pups were seen playing around a culvert near the Human History Museum. One observer watched one climb a tree, then run along the roof of a ranger residence. The foxes' semi-retractable claws allow them to hunt and sometimes even to sleep in trees. They are smaller in size than coyotes (less regularly seen in Zion Canyon), and peppery gray on top with reddish brown sides.

What's Blooming in Zion?

Silverleaf Nightshade (*Solanum elaeagnifolium*-Potato Family) is highly photogenic this season, carpeting open fields in Zion Canyon with violet flowers and silvery-green leaves. Like many members of the potato family, they are poisonous; those found in arid regions are often prickly. The bright yellow berries contain a protein that curdles milk. Native Americans crushed them and added them to milk when making cheese.

Buffalo Gourds (*Cucurbita foetidissima*-Cucumber Family) are easily recognized by their golden blossoms and long triangular leaves that crawl out onto the Pa'rus Trail and look like they're ready to snatch you. In spite of its rank odor and the bitter taste of its gourds, Native Americans used it for everything from food to cosmetics to ceremonial rattles. The seeds can be dried and roasted, or ground into flour or meal.

Remember, it is against park policy to pick flowers. Please heed signs that say, "Stick to the Trail," and give plants a chance.

A Hike to Observation Point with George Melendez Wright

It is May 30, 1930, and George Melendez Wright and his companions are starting their hike to Observation Point. The early morning sun has not yet risen high enough to reach the maze of switchbacks which zigzag back and forth, up and away from the canyon floor, and into the heart of the Navajo sandstone cliffs. Although it is still early, the heat of another desert day is already present in the warm breezes that whip past the cliffs. Wright and his companions are here for a reason: to observe Zion National Park's wildlife, and they have set out on the trail to see things for themselves. Along the trail Wright records his observations in a journal.

A National Park Service naturalist, Wright almost singlehandedly undertook a vast study of the management of wildlife in the national parks beginning in 1929. The study took him on travels to many Western parks and monuments where he and his team were able to determine original and current wildlife conditions and identify adverse changes to wildlife populations. From his observations, Wright formulated a plan of recommended actions to help restore wildlife populations in parks to their original states and then maintain them. The findings of his studies were published in two reports in 1932 and 1934. The 1934 report touches specifically on Zion when Wright notes the need to implement a restoration project of "assistance, through special protection of one kind or another, to rare species, namely… bighorn in Zion National Park." Wright and his companions did not see any bighorn sheep on their trip, but they nonethe-less saw a number of species which continue to be seen regularly in Zion today.

Naturalist Wright almost singlehandedly undertook a vast study of the management of wildlife in the national parks.

After trekking uphill for about one mile on the way to Observation Point, Wright and his companions come to Echo Canyon. The cooling, moist air of this water-carved slot canyon is a relief to the senses. Rippling walls of rock surround the men, refreshing in their tranquil beauty. But not far ahead, the canyon walls begin to widen, and out into the desert sun the men go. More arduous switchbacks cut up along the sandstone walls, which begin to shift in color from rich reds and brilliant yellows to a blindingly pure white. Soon the men reach the high rim of the canyon, and here they discover

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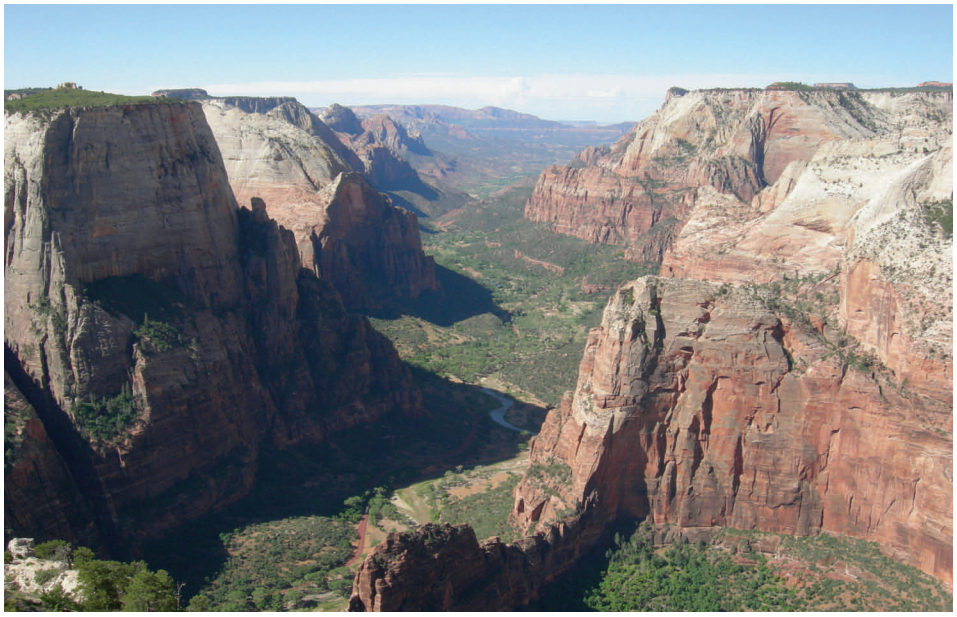

The stunning and immense view of Zion Canyon from Observation Point looks much as it did in 1930 when George Melendez Wright stood here. Photo by Sally Wier

Kolob Fire of 2006: Then and Now

Six—that is how many years have passed since I first visited Kolob Terrace Road as a volunteer for Zion National Park. Finding myself back in Zion as a seasonal ranger, I wanted to see what the fire of 2006 did to the high, climax pygmy forest of piñon pine and Utah juniper I had found along the road.

Then, it was a thriving, drought-tolerant ecosystem typical of this particular altitude. Today, fire has transformed the landscape in striking contrast to the green and healthy forest of my memory. I gaze in awe at the ghost-like figures reaching upward and try to remember how they looked before they became charred, their silvery-black skins bare against a piercingly blue sky.

From various park sources, I learned the fire occurred when the temperature was 107° and the humidity 1%. Those kinds of conditions produce a very hot fire that burns intensely.

Typically, piñon-juniper forests don't tolerate fires very well because the bark of both trees is very thin and flammable, offering poor insulation from high heat. Fire can then

Life returns to a burned area in the form of showy, Palmer's penstemon. Photo by Letitia Lussier

burn readily into the cambium, the sensitive layer of cell production, where water and nutrients move through the tree.

A fire full of intensity and heat, igniting highly flammable trees can develop into a "crown fire," which burns right up to the very top portions of the trees. This type of fire usually kills new buds, and the potential for new growth. In conjunction with crown fires, all of the leaf litter and buried seeds go up in flames, too. The intense heat of these fires penetrates deep below the soil, extending throughout the trees' drip lines and leaving the soil sterile. All of these conditions occurred in the fire of 2006.

Destruction of this proportion means a slow recovery is likely. Piñon-juniper forests' recovery time is anywhere from 80 to 300 years. The new trees will be replacing ones that may have been as old as 650 years, in the case of Utah junipers, and 1,000 years for piñon pines. For a forest like this to rebound it will take several acts of nature. These include strong winds and seasonal rains, which transport seeds from the forest perimeter into the burned area. Native birds like piñon jays, which cache seeds by storing them in the ground, are one of the primary contributors to re-growth.

Once I recover from my initial shock, I begin to wonder if this place will ever recover. I notice at the base of some of these barren trees life has begun to appear in the form of wildflowers and budding cacti. And in the far distance, I hear the sound of hope—the call of a piñon jay soaring on the wind.

-Letitia Lussier

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Thanks to our writers Robin Hampton, Letitia Lussier, and Sally Wier.

On August 1, 1929, the first issue of *Nature Notes* was published. Written and produced by the Education Departments at Zion and Bryce Canyon, its purpose was to provide information to "those interested in the educational opportunities, the natural history, the scientific features or the scenic beauties of this region." Eighty-one years later, *Nature Notes* continues this tradition by covering subjects pertinent to Zion National Park and its employees.

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the first notable sign of wildlife: tracks of a ringtail cat. Soon four chipmunks appear. Wright notes in his journal that "this was the only animal we saw from an elevation of about 4600 feet on the trail, to Observation Point at 6,200 ft." After reaching the rim and continuing out to Observation Point itself, Wright saw many birds: gnatcatchers, a Woodhouse's jay, white-throated swifts, violet-green swallows, and turkey vultures.

Today, in the footsteps of George Melendez Wright, we too can hike up to see the sweeping and scenic vista at Observation Point. Although Wright may not have observed an abundance of wildlife in Zion, chances are today we'll see just what he saw. Through the scientific research and heartfelt efforts of Wright and others within the National Park Service, the vast beauties of our American wild lands are being preserved. We can enjoy these lands as they were in the past, and we will be able to enjoy them for many years into the future.

- Sally Wier

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soil, a process known as hyperaccumulation. No need to use herbicides. These selenium-smart survivors soak up enough toxic armor to guard themselves against all enemies. Touché!

Come to think of it, I guess I do like gardening. Being a ranger in Zion National Park means I am a caretaker of my hardy friends. Oh, I may not mulch or seed or water anything, but I'm definitely their protector and their advocate. As good friends often do, they've allowed me to take a peek into their private, fascinating, and lovely world.

Not bad for a girl who didn't think she had a green thumb.

-Robin Hampton