

Monument to plant intelligence

Seen flowering near Big Sky, it waited as many as 80 years before recently taking its one shot at parenthood

BY DAVID MADISON
editor@lonepeaklookout.com

It's a charismatic flower that can grow more than six feet tall and produce several hundred flowers. It draws energy from a sophisticated taproot system promoting patience and longevity. The monument plant—on display now near the Bighorn Pass Trailhead in the northwest corner of Yellowstone National Park—exhibits remarkable behaviors, leading researchers to describe it as cunning and parental.

Along with its effective strategies for survival and procreation, the monument plant is also wrapped up in the legend of Scottish botanist David Douglas of Douglas fir fame, who first collected it near Spokane in the early 1830s. Douglas traveled across the Pacific Northwest and on to Hawaii, where in 1834 he was either hacked to death with an axe by an escaped convict from Australia or crushed in a trap set to catch wild oxen—depending on which source you believe.



Morgan Warthin in the public information office at Yellowstone National Park reports the fascinating monument plant is, "Having a fabulous year for blooming! It has a lot of pollinators and is a beautiful native plant." PHOTO COURTESY OF NPS.GOV

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Wildflower enthusiast Mary Riley, who along with her husband Michael, brought the blooming monument plants to the attention of the Lookout. PHOTO COURTESY OF MARY RILEY

The violent demise of David Douglas ended a good run for the 34-year-old, green-thumbed Indiana Jones. He was famous for prowling the world in search of interesting plant species. Some would eventually transform into the stars of domestic gardens like Lupine and California poppy.

The monument plant's procrastinating approach to procreating disqualified it as a popular garden variety back in the U.K. It only puts on one flowery show per lifetime, making it a "monocarpic" plant, which is the scientific way of saying it grows 20-80 years, blooms once and dies.

When part-time Big Sky residents Michael and Mary Riley discovered monument plants popping up near the

Bighorn Pass Trailhead and about mile up the trail, they took pictures, then went home and ID'd the pretty white, green and purple blossoms.

Mary pulled out her copy of Dr. Dee Strickler's "Alpine Wildflowers" and read how, "From a distance the flowers appear quite plain, but on close inspection they are stunning. Purple flecks dot the four greenish-white open-faced petals."

Excited to find more monument plants, Michael and Mary returned to the Bighorn Pass Trail. There they encountered a Yellowstone Park Ranger, who had never seen the plant. Soon a group formed around some attractive specimens close to the trail. Seems drawing attention is in its nature. The plant's Latin genus name

is "Fraseria," in honor of 18th century botanist John Fraser, and "Speciosa" or "showy."

Michael and Mary said when they first encountered the monument plant, they'd just celebrated their wedding anniversary on June 10. This made them laugh at the notion all the monument plants currently blooming in Yellowstone could be older than their marriage.

Maybe the plants took root around 1948, when the park first hit the one-million annual visitor mark. (Could YNP welcome 4.5 million this summer?)

Mary thought back over the potential life span of the monument plants in her pictures from inside Yellowstone, then marveled aloud at their journey: "A single blossom comes up and it dies and that's it."

Actually, the stalk can remain for several years, and some studies show the plant continuing its nurturing role as a parent after death.

Researchers found, "Seedlings were almost twice as likely to survive if they grew among the fallen leaves and stems of an adult plant as they were if they grew in the open." The dead mother plant provided postmortem drought insurance, the study claimed, as it described this rare example of a plant nursing its own seedlings.

Today, the monument plant is also known as elkweed, green gentian and deer's ears. It grows from the Northern Rockies down into Mexico. On social media, there are reported sightings at Snowbird Ski Area in Little Cottonwood Canyon, outside Salt Lake City. It's also been seen around Colorado, where Dr. David Inouye has studied monument plants at the University of Colorado's Rocky Mountain Biological Laboratory in Gothic since 1973.

Over the decades, Dr. Inouye has

documented how monument plants appear to synchronize their blooming schedule. During the summer of 2010, he and his colleagues reportedly counted more than 10,000 blooming individuals in the East River Valley near the lab.

Known as a "synchronous bloom," research indicates they come about three or four years after a wet summer growing season.

Flowering all at once creates a biological advantage by attracting more pollinators to the flowers and ensuring some of the seeds survive the appetites of preying birds and small mammals.

Spruces and firs rely on a similar reproductive strategy, with trees putting out massive, synchronous cone crops throughout a single forest. For the monument plant, its pent-up plant desire to reproduce goes on throughout the summer until the main stalk starts to wither and die.

Death can come prematurely if the monument plant is attacked by tortricid moth caterpillars, which dine on ovules and pupate in the ovary walls. Deer and other mammals also eat the pale green lance shaped leaves.

Other research suggests the plant's internal clocks are set for self-defense. By only blooming in discrete, unpredictable pockets across a wild landscape of forests and meadows, the monument plant is protecting itself. Researchers call this "a predator avoidance system which yields widely dispersed colonies in space" and this prevents the "build-up of predator populations."

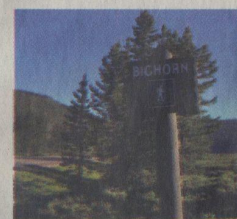
In other words, deer and moths can't count on the monument plant showing up in the same place every year, so it's not a reliable source of nutrients. This wildflower has figured out it has a better chance of survival if its blossoms appear by surprise.

The higher the elevation, the longer monument plants tend to wait before finally bursting with color in the species' pollinating dash toward death. If you spot one on the trails around Big Sky, try identifying its age by counting the swirl of basal leaves.

One online fan of the monument plant urged hikers to seek out the pollinated flower stalks in late summer, when "their ripening seeds smell distinctly like fresh-roasted peanuts."

Smelling plants inside Yellowstone is allowed. Picking them is not, so don't follow Navajo tradition when it comes to monument plant flesh. The Navajo considered this a "male" plant—according to one online posting—which was blended with great mullein (*Verbascum thapsus*) a "female" plant.

"Leaves of both plants were mixed and the tea made out of them was rubbed on the bodies of the hunters to give them strength. Dry leaves were smoked with mountain tobacco to 'clear the mind.'" Or so goes the legend of the monument plant, which will drop its seeds in the coming weeks. Those seeds might not blossom until 2098.



Head to the Bighorn Pass Trailhead (about 33 miles from Town Center) and look for monument plants blooming in the surrounding sagebrush on the way in and right next to the parking area. PHOTO BY DAVID MADISON