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Al and Betty: Citizen scientists

By [Andrew Gulliford Fort Lewis College](#) Saturday, May 8, 2021 6:00

High atop Sharkstooth Pass in the La Plata Mountains, I first met Al and Betty Schneider.

Having hiked up through a profusion of wildflowers, I wondered what the couple was doing crawling around on their hands and knees at just under 12,000 feet in elevation. It looked like they had lost something, so I went over to help, only to discover they hadn't lost anything – it was what they were finding that was important.

Then I started to hear an ancient language, Latin, and explosions of recognition and delight. Our dogs started to romp together. Al stood up, introduced himself, and his magnifying glass fell to his chest secured by a beaded lanyard. I was about to meet Al and Betty, botanists from Pleasant View who keep expanding what we know about plants in the Four Corners. Within a few months they'd have my wife and me crawling around in the tundra, too, magnifying glass against our eyes as we explored the magnificent world of tiny flowers thriving above timberline in the San Juan Mountains.

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In the high Sierras, John Muir walked along streambeds and talked to rocks. He would ask them, "From whence have you come and whither are you going?" Al talks to plants. He gets down and asks, "Who are you?" Occasionally, the answer reveals something new to science.





Courtesy of Andrew Gulliford Betty Schneider assists her husband, Al, identify flowers. They retired to Lewis, Colorado after various careers.

Al has had a satisfying and eclectic career. When he worked for the Missouri State Parks, he helped to develop the Ozark Trail. A former English professor, in Southwest Colorado, he taught computer-based education for the Ute Mountain Ute Tribe and led trips for the Sierra Club. He knows his plants and is webmaster of Southwest Colorado Wildflowers – Wildflowers, Ferns & Trees of Colorado, New Mexico, Arizona & Utah.

His professional colleagues say the website “provides a wealth of information on the regional flora” and that “Al and his wife, Betty, are ardent and discriminating field botanists and photographers.” More than 1,000 species on his website describe and offer photographs, courtesy of the Schneiders, who have done plant surveys at Mesa Verde National Park.



Courtesy of Al and Betty Schneider The golden rounded shape of this dryland species, *Gutierrezia elegans*, gave rise to its "elegant" name. Barren Mancos shale surrounds each plant.

At Lone Mesa State Park, working with Peggy Lyon with the Colorado Natural Heritage Program, Al went to photograph a plant. "I could not identify the plant, nor could Peggy," he said. "We knew it was a sunflower (Asteraceae) in the genus *Gutierrezia*. Weeks later, another professional botanist helped us to describe it as a new species. It's a very cute little plant, 6 inches tall and 10 inches wide, candelabra-like with tiny flowers."

They named it *Gutierrezia elegans*, and it thrives on weathered Mancos shale, but on the entire planet, it is only found at or near Lone Mesa State Park in Dolores County. Luckily, there is "a good, solid population" all within a half mile. In a world increasingly fraught with threatened and endangered species, Al and Betty had discovered a new plant unknown to science.

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More scrabbling on hands and knees produced another find – a little sunflower that Al says, "It's just nothing but cute," and is related to alpine sunflowers. *Packera mancosana* also grows on Mancos shale. Imagine the delight of finding "two species within a few feet of each other, never before recorded." Is that luck or perseverance or both I asked him. He gave me a broad grin and said, "Both. If you want to find unusual things, go to unusual places."





Courtesy of Al and Betty Schneider Betty Schneider called Al Schneider over to see this plant. "I don't know what it is, but we've never seen it before," she said. Apparently, no one else had ever noticed it and the little plant finally got recognized as a new species, *Packera mancosana*.



Courtesy of Andrew Gulliford Al Schneider is examining an alpine paintbrush, which botanists have long considered a hybrid plant, but which Schneider insists is a new species. He has christened it "*Castilleja versicolor*," with details on his website.





Courtesy of Andrew Gulliford With his eye close to a magnifying glass, Al Schneider keys in on summer flowers in an alpine meadow above Silverton.



Courtesy of Al and Betty Schneider The individual flowers of *Gutierrezia elegans* are quite tiny, just several millimeters across and high, and they are in groupings of about seven so their mass is attractive.



Courtesy of Andrew Gulliford Summer hiking with the Schneiders in the San Juan Mountains, as in this setting off Stony Pass, can be a delightful excursion – with hours on your hands and knees and your face inches from the tundra.





Courtesy of Al and Betty Schneider The almost translucent flowers of *Ipomopsis ramosa* are white, coral, pink and orange and have a very attractive and unusual scent. Individual plants flower for several months.

Then there is a third plant. Up the Dolores River off Highway 145 along steep hillsides with Cutler red sandstone. "We'd gone up that road dozens of times," Al said. "This one time, the sunlight was just right, and I saw these light flashes from a small plant." They stopped to look at what at first appeared to be scarlet gilia, but instead these plants had coral pink and orange buds. Betty is just as much a sleuth as Al is. They took pictures, collected and bagged a sample, and thought it was a kind of phlox.

The plant is found in Dolores River tributary creeks on south-facing slopes in four side canyons off the Dolores. It grows to 14 inches tall with three to eight stems and narrow, tubular flowers. Years of observation and genetic work by Fort Lewis College students under professor Ross McCauley showed this to be a new phlox species, which Al and Betty named *Ipomopsis ramosa*, Coral *Ipomopsis*.

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Plant identification is an arduous process requiring a keen eye, field guides and plenty of patience. The Schneiders have all the right books as well as those personality traits. Betty was the first female paramedic firefighter with the University City Fire Department in suburban St. Louis. As a young woman in a male environment, she was tested time and time again, but she always rose to the challenges and became the first woman fire captain in the history of Missouri.

Now, she practices superb beadwork, teaches others how to bead and enjoys finding flowers. Al praises his wife: "Something in her brain allows her to pick out the tiniest leaves and flowers when they are buried in a mass of green. She has visual and mental acuity and sees things that few people do."

As for the thrill of finding unknown plants, Al says, "There are people who try to find a new plant species, but Betty and I just like to look. It's exciting for other people to learn that amateurs can discover new plants for science." That's true. In an age of diminishing budgets, citizen science is a hopeful alternative to expensive state and federal eco-undertakings.

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Hiking with the Schneiders is totally relaxing. You can spend hours and still look back over your shoulder and see your truck. It's not about distance or scenic views, rather, it's about the microscopic world at your feet and the beauty of plants and flowers no bigger than half your thumb. And the names. You've got to love the names. The Schneiders have introduced me to alhino sky pilots' miners' toes christened because of their noxious odor: Parry's lousewort: rosv

alpine sky photo, miners' trees, emmetted because of their hexious odor, Fairy's reasewort, red, paintbrush; *Tonestus pygmaeus*; and a dozen others. Walking with the Schneiders, you see whole worlds just by taking a few steps keeping your eyes focused a half inch off the ground.



Courtesy of Andrew Gulliford Al Schneider gets up close and personal to photograph high country flowers for his well-visited website, Southwest Colorado Wildflowers – Wildflowers, Ferns & Trees of Colorado, New Mexico, Arizona & Utah.

If finding new plants is exciting, the ultimate honor for botanists is to have plants named after themselves. Indeed, there is now *Heterotheca schneideri* found in the western San Juans. It flowers from July to September, likes open rocky and gravelly slopes, and is similar to *H. pumila*. Both plants have "low, caespitose habit with evenly leafy stems and prominent capitula bracts but (they are) different in (their) closely short-strigose stems and leaves, (with) more prevalent distal branching and phyllaries more distinctly triangular." That sounds like Latin to me, but then I'm not a botanist.

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Courtesy of Andrew Gulliford Local botanists Al and Betty Schneider have found three new plant species and earned accolades from professionally trained biologists. The couple represents citizen scientists at their best.

Now that it is spring, the Schneiders are out and about. I've got my own magnifying glass with Betty's beadwork on the lanyard. My wife and I might join them. We certainly won't identify any new plant species, but we may be able, in poet William Blake's words, "to see a world in a grain of sand/and heaven in a wild flower/hold infinity in the palm of your hand/and eternity in an hour."

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Chuck and Paula

