The Crystal Cōver

November 2026

I hugged Methuselah. Well, maybe not Methuselah, but one of her siblings for sure. On a recent road trip, John and I detoured off highway 395 near Bishop to explore the gnarled, weather-beaten **Ancient Bristlecone Pine Forest**. Walking amongst these venerable trees had been a bucket list experience for me and they did not disappoint. At 10,000 feet, only one other species of pine, the limber pine, can survive in this harsh, windswept inhospitable environment. The fact that these resilient marvels, shaped by wind, snow, and rain, survive and prosper in adverse growing conditions confirms that longevity is their superpower. No other species comes close to the title bestowed upon them; "oldest living non-clonal organisms on the planet" with Methuselah having a verified age of almost 5,000 years old. Their soil mates, the limber pines, are known to live a mere 2,000 years. Bristlecone pines are found in only a few places on the globe, all at remote high elevation spots in the western United States including Great Basin National Park in Nevada, and the fabulous forest east of Bishop. Because not much else can survive in alkaline dolomite soil, bristlecone pines have virtually no competition from other plants, have plenty of space to stretch their roots between trees, have incredibly dense wood which provides a barrier from insects, fungi, rot, and erosion and seem to corkscrew out from limestone rock. They thrive in one of the harshest environments in North America with temperatures that drop below freezing, a short growing season, and gale force winds that twist the trees into distorted, yet beautiful beings. Bristlecone pine saplings were growing in a research garden outside the Schulman Grove Visitor Center, and as I looked at these tiny trees in their earliest stage of growth, I thought about how many more years they would live. After all, they were the great, great, great, great grandtrees (the greats go seemingly to infinity) of Methuselah. Although it is a twisty turny drive up a mountain road to reach the Ancient Bristlecone Pine Forest it is well worth the drive to revel in the majesty of the oldest trees on Earth.



Bristlecone Pine
Pinus longaeva

Plant adaptations fascinate me. Bristlecone pines, for example, conserve energy by keeping their needles and continue to grow with almost no bark - just two of their strategies for a long life. Here in the park, after having completed the Los Trancos trailside "Botanical Beauties" panels I wanted to add an educational component for classes who wanted to delve further into **ecological concepts of plant adaptations** beyond Bio 101. While researching I stumbled upon a site with a humorously detailed article titled *Botanical Barbarity: 9 Plant Defense Mechanisms* and discovered some fascinating facts. The article stated: "There's no brain in a cabbage. That's axiomatic. But the lack of a central nervous system doesn't prevent them, or other plants, from protecting themselves. Some species boast armature such as thorns, or spines that ward off slavering herbivores. Some are loaded with poisons to sicken or kill them. And while tomatoes may not be able to scream, as L. Ron Hubbard once claimed, some plants do emit compounds that warn their compatriots of approaching threats: the botanical equivalent of a smoke signal." Amongst the plants we find in the park, some of the more familiar plant protections include **spines** on prickly pear and cholla cacti

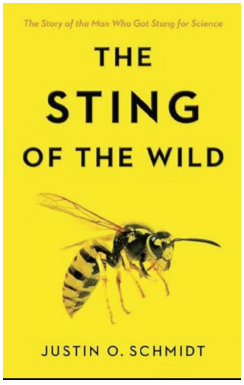
and **trichomes** (stiff sharp hairs) inherent to stinging nettle and branching phacelia. Even western sycamore has tiny soft hairs that act like fiberglass, irritating the eyes and breathing passages of herbivores who may try munching them. Many other local plants use a form of **chemical warfare** to deter predators. For example, the main defense mechanism of the black walnut tree is the production and release of a toxic organic compound called juglone, which stops other plants from growing nearby. Other plants like toyon use chemical toxins as well which act as a natural deterrent to browsing animals like deer (once bit, twice shy) or blue elderberry which produces natural toxins that release poisonous hydrogen cyanide gas when the plant's tissues are chewed, crushed, or damaged. Poison oak and laurel sumac are ripe with urushiol oil, a bitter sap that deters some organisms, although many others are entirely unaffected by the sticky resin. I am always humbled when I think about how living organisms protect themselves and have evolutionarily developed some ingenious survival strategies.


Branching Phacelia
Phacelia ramosissima
Trude Hurd

I happen to be one of those people who like **spiders**. I prefer them outside rather than inside my house, but they are stellar hunters eating mostly insects by injecting their venom into their prey, liquifying them and slurping them up, so if they can work their magic on the insects inside my house, they are welcome visitors. Although numbers vary, experts seem to agree that there are more than 50,000 species of spiders worldwide. At a recent arachnid talk hosted by Laguna Canyon Foundation, entomologist Lenny Vincent wowed us with some super spider snippets. He taught that spiders have a low metabolic rate and can go long periods of time without eating, that spiders don't stick in their own webs using "tip toes" to make minimal contact, that jumping spiders can detect color and movement, and that ounce for ounce brown widows have the most potent toxin of all spiders in Orange County. He also emphatically confirmed that despite much controversy, brown recluse spiders cannot be found in California. Lenny shared photos of many species of spiders, but one of a peacock spider was truly the most vivid and dazzling spider I had ever seen. Peacock spiders, a teensy species of jumping spider found exclusively in Australia, has the WOW factor. Although the female is nothing much to look at, the male has a brilliantly colored abdomen made from iridescent scales and hairs (which I think resembles a tribal mask) which it flaunts in its elaborate courtship display. To woo a female, a male unfurls the vibrant fan attached to his abdomen and lifts his third legs in the air while performing "dance moves". How could a female turn down such pageantry? But, if she's not impressed or the dance is not truly compelling enough, then for the male spider that's a rap, and I mean a "wrap", since he will become the females next meal. Watch the spectacle for yourself. Peacock Spider Mating Dance.


Peacock Spider
Maratus speciosus

In addition to talking about 8 legged, 8 eyed creatures with fangs and venom Lenny also talked a bit about insects. He shared a book *"The Sting of the Wild"* by entomologist Justin Schmidt, aka the **"King of Sting"** who became interested in stinging insects as a five-year-old child when he accepted a challenge from older boys to sit on an ant mound to see what would happen. He wrote "The ants swarmed over and under my britches and started biting my posterior. Up from the mound, down with the pants, and frantic brushing to get rid of them. No long-term damage was done, but I had learned an important lesson: insects can fight back." Professor Schmidt dedicated his career to studying insect predator/prey relationships and defense mechanisms with a specific focus on things that sting. His goal was to



collect enough data to support or reject his hypothesis that the sting was important in the evolution of sociality (solo organism as opposed to colonial organisms who live amongst a whole bunch of members like harvester ants whose colonies may contain up to 15,000 biting ants). So, for the mad professor, it was all about science and getting stung over 1000 times was all for the greater good. He even developed the Schmidt Sting Pain Index, for which he won a Nobel Prize in Physiology and Entomology, which measures the intensity of the sting on a scale of 1-4 (1 being minor pain like that from a fire ant up to 4 which is paralyzing and debilitating like that from the dreaded tarantula hawk wasp.) Check out the soft-spoken, but totally impassioned entomologist himself, it's impressive. The King of Sting.



As someone who drives on Pacific Coast Highway between Corona del Mar and Laguna Beach every working day of my life, I was pleased to read that on October 9, this stretch of roadway celebrated **100 years of operation**. On that day, Douglas Fairbanks and his wife, Mary Pickford, the biggest movie stars of the time, presided over the ribbon cutting celebration that forever changed this part of Orange County. Construction on what was then called the "Roosevelt Highway" took less than one year to complete and ran for 10 miles. However, because of financial issues, only four miles were paved, whereas the remainder of the road was laid with tightly packed crushed rock. This grand opening was commemorated as the completion of "another link of the coast highway chain" which connected the southern Orange County beach towns. People from far away Los Angeles were now able to access this off-the-beaten track locale and the little slice of paradise now known as Crystal Cove State Park.

Somehow, I have managed to get to the final paragraph of the Crystal Cover without mentioning **Storm Crisis 2026**. Like everyone else, I am trying to wrap my head around the daily dynamics that are causing high tides, big surf, warm water temperatures, a never-before-heard-of Kelvin wave, flooding, erosion, monster cliff cracks, and fires. Parts of the park look like a construction zone whereas along PCH near Moro Beach dozens of Caltrans trucks, crew and equipment have taken over the roadway in an effort to stabilize the compromised slope. It would be easy to fall into a "chicken little" mindset, but I am trying to stay positive and remind myself that

"Nature is intent upon the necessity of healing, and her power of recovery is immense."

See you in the park!

Winter



A tarp covers a crumbling bluff along Pacific Coast Highway at Crystal Cove State Park between Newport Beach and Laguna Beach on Monday, October 19, 2026. (Photo by Paul Bersebach, Orange County Register/SCNG)