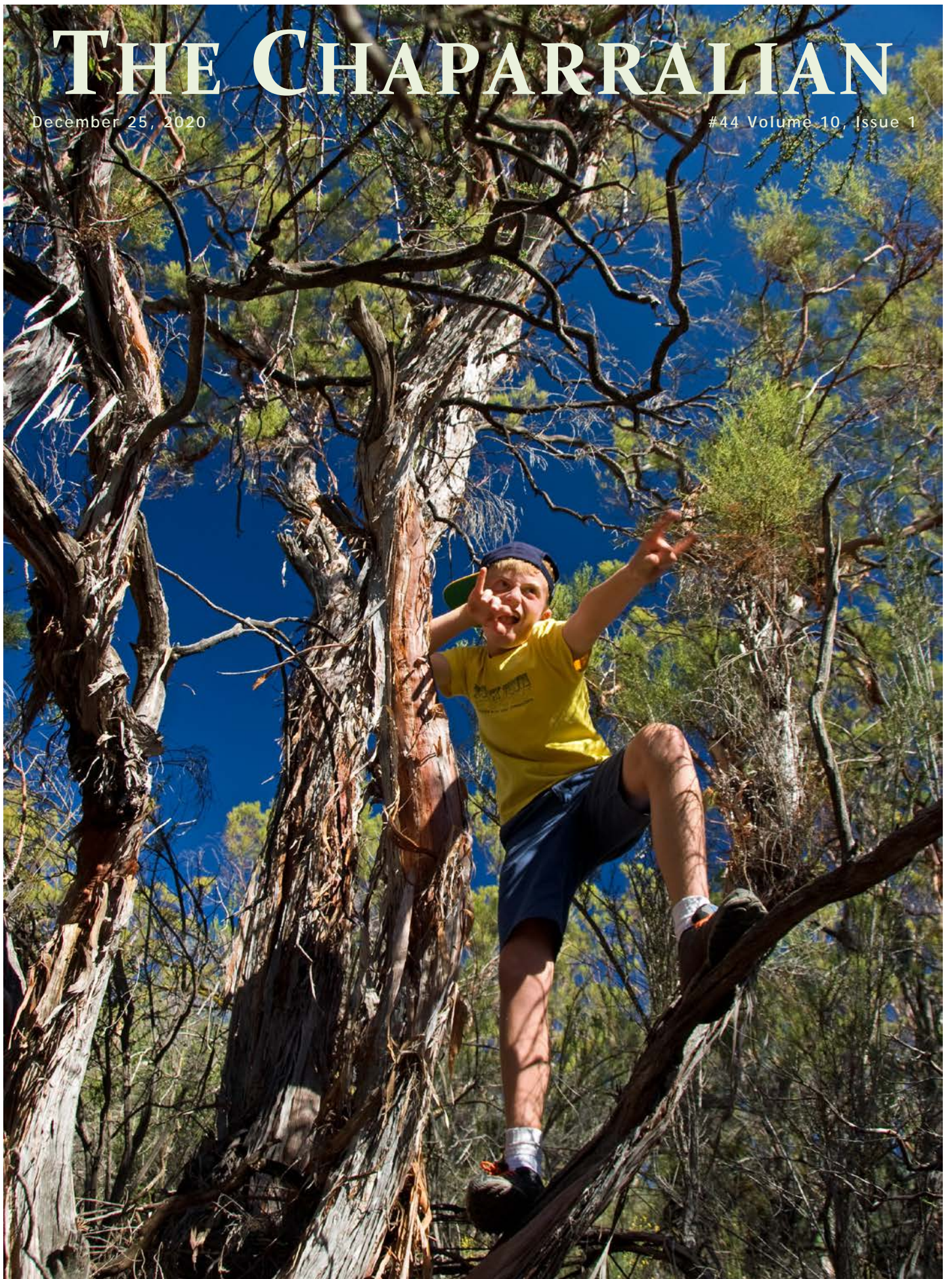


THE CHAPARRALIAN

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The Legacy of Old-Growth Chaparral



The old-growth canopy of manzanita chaparral at Burton Mesa, CA.

Once home to the now extinct California grizzly bear, old-growth chaparral is known for beautiful manzanitas with waist-sized trunks, colorful lichens, and an elfin understory carpeted with a soft layer of fallen leaves and twigs. Defined as being 50-years-old or more, old-growth chaparral provides habitat for an amazing array of life forms — one of the reasons California is so rich in biodiversity.

In this new issue of *The Chaparralian*, our first since 2013, we celebrate those increasingly endangered stands of chaparral that have escaped the flames (and humans) for at least a half century.

While walking through old-growth chaparral, feeling the morning moisture quietly softening the brisk air, and watching the myriad of creatures navigate the dense canopy overhead, one experiences a rare view of old California. Few in the state are aware of these ancient treasures, but

only because they have never been shown, guided to look, to experience, to feel. Once they have, old-growth chaparral communities become magical places. Be that guide once the world is safe again.

The need to protect the remaining stands of old-growth chaparral is one of the reasons we, and our friends at the Endangered Habitats League, have taken Cal Fire to court. The agency plans on eliminating legacy old-growth chaparral in wildland areas far from development. They justify this course of action as “ecological restoration,” based on the false beliefs that old-growth chaparral is worthless and only represents “fuel” in need of mitigation. They couldn’t be more wrong — **it’s Nature**. Please visit our website for more info: click the [Cal Fire](#) tab under Threats.

In tribute to one of California’s natural wonders, please enjoy this new issue of *The Chaparralian*.

The Photography of Chaparralian Alexander S. Kunz

Alexander S. Kunz is a landscape and nature photographer. Having moved to Southern California from Germany in 2010, he sought a deeper connection to his new home in San Diego's north county, and became a Certified Chaparral Naturalist with the California Chaparral Institute in 2015. It led to a deep appreciation for the chaparral and sage scrub plant communities that resulted in hundreds of photographs of native trees, shrubs and wildflowers that can be enjoyed and explored on his website at www.alex-kunz.com. Prints of his photographs decorate homes, offices and health care facilities and are readily available at alexander-kunz.pixels.com

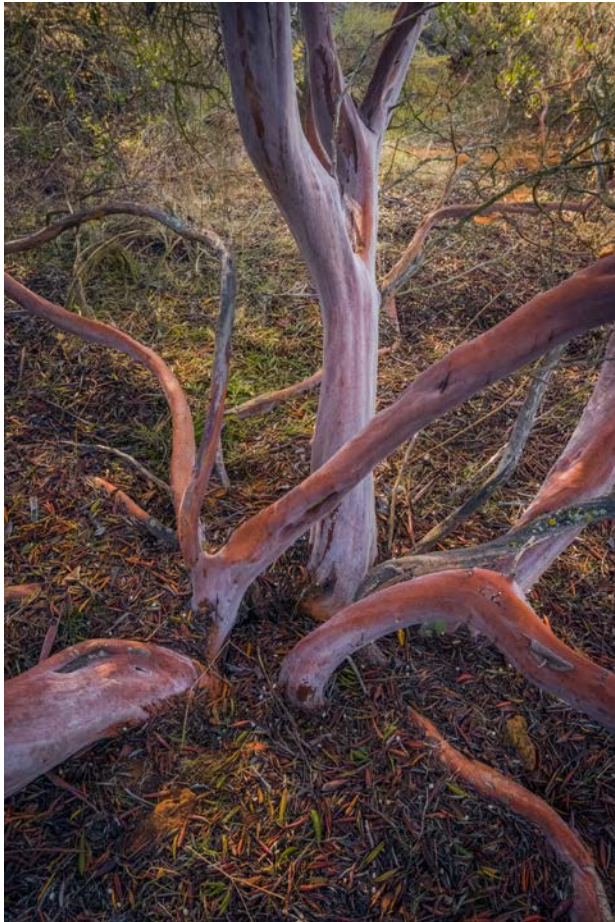


When chamise (*Adenostoma fasciculatum*) gets a chance to grow old, it turns into an incredibly attractive miniature tree with twisted twigs and branches. Its bark may hang from the sizable trunk in rags, much like what its sibling the ribbonwood at higher elevations is known for. A couple of these beautiful old plants can easily be enjoyed at the Carmel Mountain Preserve, an island of coastal sage scrub and chaparral that has been preserved amidst the sprawl of development in Carmel Valley.

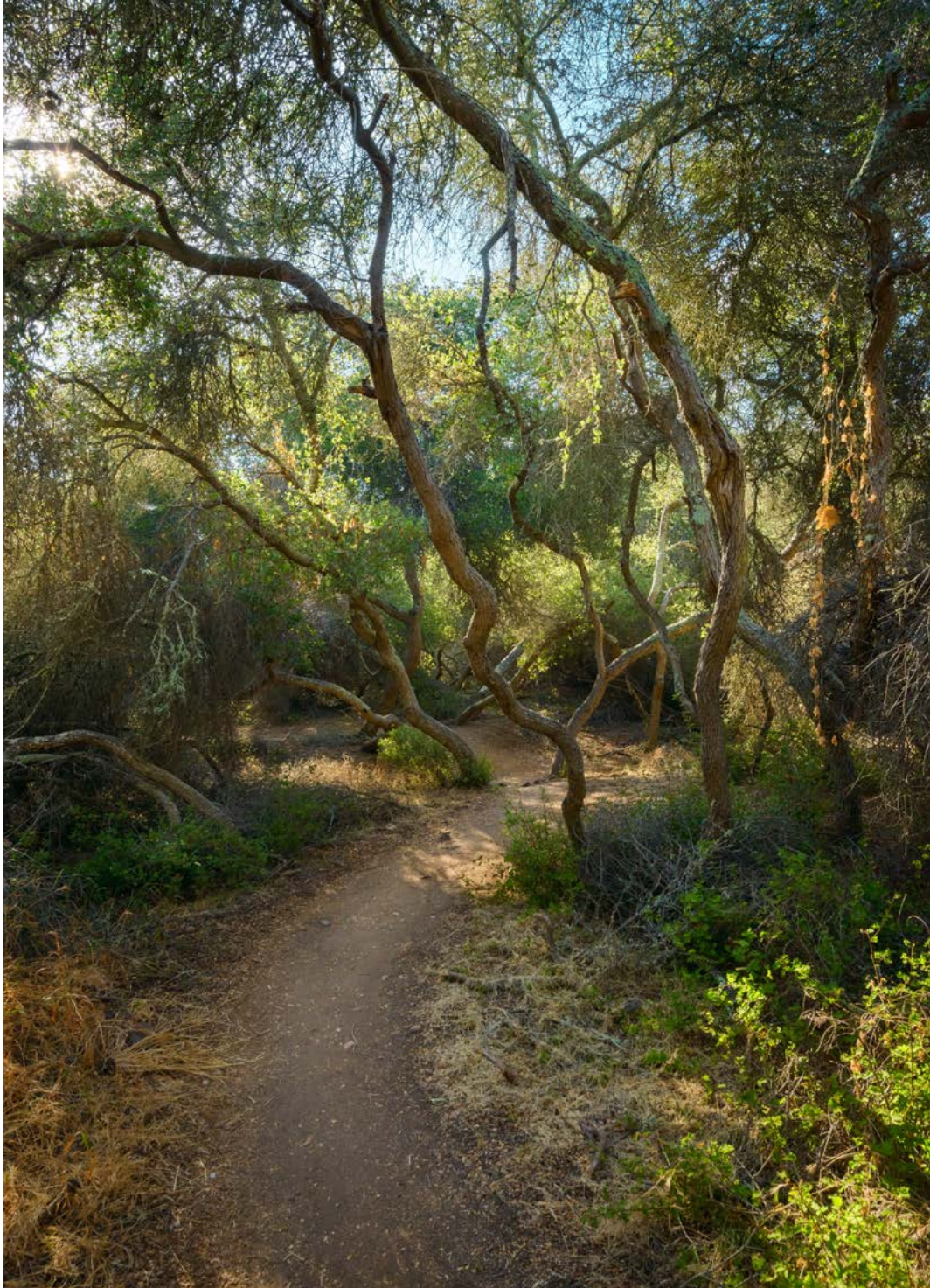


What's more beautiful than an old-growth manzanita? A wet old-growth manzanita, its muscular trunks accented by rain and shimmering like polished stone, as beautiful as the most skillful mason could ever chisel it. Late season storms such as this one in April often shroud San Diego's mountain regions in clouds, adding even more mystery to these ages-old plants, as their twisted trunks reach into the fog.

Among the largest old-growth manzanitas of the *Arctostaphylos* genus that can be found in San Diego County are probably the ones at Volcan Mountain Wilderness Preserve, up in Julian. Many of them can be admired and enjoyed right from the trail, not too far past the entrance at the Hubbell Gate. On this particular specimen, many of the big old branches are split into a living and a dead part, with living red bark on one side, and a grey dead part on the other.



The most beautiful old-growth mission manzanita (*Xylococcus bicolor*) can be found on the east side of Mission Trails Regional Park, San Diego. Following directions from Rick Halsey, I was devastated to find the oldest and largest specimen torched by a fire – but it was already resprouting. Keen on finding and photographing an old-grown mission manzanita I continued away from the burned area, up the hill towards Cowles Mountain, and immersed myself in the shrubs to find this wonderful plant, its branches growing like tentacles out of an enormous layer of its own leaf litter.



The tunnels of Deer Canyon at the Del Mar Mesa Preserve, San Diego, make it relatively easy to access and enjoy astonishing old-growth chaparral, composed primarily of scrub oak and mountain mahogany, with summer holly, mission manzanita and toyon mixed in as well. These trails are popular with hikers and mountain bikers alike today but one can't help but wonder if they weren't originally worn into the landscape by the California grizzly bear, which called these lands their home still, a mere hundred years ago. That's probably how old this enchanting elfin forest is.

A New Vision for Chaparral

By Bryant Baker and Richard W. Halsey

Photos by Bryant Baker

Folk wisdom about chaparral makes a number of simplifying assumptions that, because they are inaccurate, obscure the ecosystem's actual nature and can lead to inappropriate management policies. For example, the assumption that chaparral undergoes a regular cycle of three discrete stages of fire, growth, and maturity (ad infinitum) is not borne out on the actual landscape, and can result in recommendations to needlessly induce the "regular cycle" by introducing fire to mature growth.

The truth, as always, is much more interesting. At any given time, chaparral exists in one of many – not just three – potential states along a continuum, each important to biodiversity in different ways. These states may be distinct in some respects, though often no clear separation exists. It is very difficult to ask, for example, at what exact point chaparral becomes mature. More importantly, in contrast to the view that chaparral adheres to a cyclical schedule, the ecosystem should be conceptualized on a linear track, undergoing constant small and periodic large changes, evolving through time.

While pyrogenic habitat forms quickly after fire in chaparral, it is somewhat short-lived – the natural successional shift to more mature chaparral is inevitable. Aging chaparral continues to experience subtle changes important for floral and faunal diversity and continues to sequester carbon. Shrubs die for various reasons, either individually or *en masse* during chronic or acute droughts, while others continue to recruit despite the lack of fire (i.e., obligate resprouters). Wildlife alter understory structures, especially rodents (e.g., *Neotoma*



The storied, fissured trunk of an old-growth Ceanothus, Santa Barbara County.

and *Peromyscus* spp.), while lichens and fungi colonize older shrubs and dead limbs. Studies have shown that well after a stand of chaparral has matured past 100 years of age, productivity remains high.

Unfortunately, old-growth chaparral remains poorly understood by researchers, land managers, and the public. Because old-growth chaparral is scientifically underrepresented and land/fire managers often convey animosity toward the



The sandy path through the old-growth manzanita chaparral on Burton Mesa, CA.

ecosystem in this older state, the general public is largely unaware of its existence or perceive it negatively.

A change is due.

Chaparral is one of the most unique ecosystems on Earth. It shares lineages with other sclerophyllous shrublands in North America that occur under non-Mediterranean type climates (e.g., Arizona and west Texas), *and without* the same prevalence of fire (“mexical” on the eastern side of Mexico’s central mountain chains as far south as Oaxaca). In fact, although mexical rarely experiences fire, it is home to California plant species traditionally viewed as fire adapted. Rather than focusing on the ecosystem as one that is fire-dependent, it should be viewed as an ecosystem shaped by many complex factors and thrives by way of an ongoing metamorphosis as it responds to change.

Post-colonization changes to the landscape have

resulted in major shifts in California chaparral’s extent and diversity. While some of these changes are irreversible, there are ways that we can coexist with the ecosystem without causing further loss — but these will require a better appreciation and understanding of the ecosystem itself.

We must also focus on seeing chaparral as a vital ecosystem — one that has the right to persist on the landscape as a life-giving natural community. We must see ourselves as intimately connected to not only chaparral, but Nature herself. In her presence, we become healthier, happier people because we’ve returned to where we evolved over millions of years. We feel at home again.

Modified from: Baker, B. and R.W. Halsey. In Press. California chaparral and woodlands. In, R. Berryman, Ed., Imperiled: The Encyclopedia of Conservation, Elsevier Inc.



Old-growth chaparral at evening light. Santa Barbara County, CA.



Old-growth chaparral in the Santa Ynez Mountains, Santa Barbara County, CA.

The Dance Between *Ceanothus* and *Arctostaphylos*

Post-fire recovery of chaparral shrubs from dormant soil seed banks

By Tom Parker

In California chaparral, two shrub genera have evolved a life history called *obligate seeding*. All that means is that the adults are killed by fire and the population recovers by fire stimulating seeds hiding in the soil. So, let's focus on the seed.

Arctostaphylos (manzanita) develops seed in dry fruit that are buried by rodents in small clusters, a process called *scatter-hoarding*; carnivores may also eat the fruit, but rodents collect the seed from the scat and hoard it afterwards in small caches. *Arctostaphylos* seed are stimulated to germinate by chemicals from smoke among other factors. The smoke chemicals accumulate on the remaining burned branches, rocks, and the soil surface; the first winter rains dissolve them and bring them to the seed in the soil.

Ceanothus is the second of those genera, and it produces hard seed coats that are sealed; they disperse when their fruit capsules dry and explosively crack open. The *Ceanothus* seed are stimulated to germinate by a heat pulse from the fire that travels into the soil as a fire passes through. The heat collapses the cells in a small tube on the seed coat where it was connected in the fruit to the mother plant as the seed developed. Now the seeds are able to absorb water from the first winter rains.

Two quite different methods that lead to the same result: seeds germinating in the first post-fire year and reestablishing their populations.

Arctostaphylos and *Ceanothus* tend to grow together and they are the most diverse genera in terms of number of species in Western North America.



Arctostaphylos purissima seedling above,
Ceanothus cuneatus var. *fascicularis* seedling
below.



One example is on Mt. George in Napa, California. This site was burned in the 2017 Atlas Fire. Before the fire, the area had a diverse composition of species, but mostly was covered with *Arctostaphylos canescens* and *A. stanfordiana* at higher elevations (see photo below). The area is a range of mountains in which *Ceanothus purpureus* is endemic. But like *Ceanothus* species in many areas, the *Arctostaphylos* species tend to grow larger and cover up the co-occurring *Ceanothus*, suppressing them through time. By the time of the Atlas Fire, there was almost no *Ceanothus purpureus* alive anymore. When I first visited the site in the early 1990s, *C. purpureus* was common.

The Atlas Fire cleared off the above-ground plants, killing the adults of *A. canescens*, *A. stanfordiana*, and any remaining *C. purpureus*. The fire also stimulated the seed bank of all these species. In the first spring after the fire, lots of seedlings could be seen. By the second year it was clear that, even in the areas with high-intensity fire, the shrubs would soon dominate the site again (see photo on the next page). The only difference is that the *Ceanothus* is going to be a prominent member of the chaparral for decades, before it slowly declines again, hiding once more in the soil seed bank until the next fire.



Mt. George prior to the 2017 Atlas Fire. Area dominated by an old-growth stand (56-years-old) of *Arctostaphylos*. Napa Valley in the background.



Mt. George post Atlas Fire with a mixture of *Arctostaphylos* and *Ceanothus* seedlings. The *Ceanothus purpureus* (light green) will grow quickly, but has a shorter life span when compared to the *Arctostaphylos canescens* (blue green) and *Arctostaphylos stanfordiana* (bright green, a few at mid-left side margin). Eventually, the *Ceanothus* will disappear, preserving its presence in the soil seed bank, and *Arctostaphylos* will dominate again.

After the 2017 Rucker Fire near Lompoc, California, seedlings of *Arctostaphylos purissima* and *A. rudis* arose from the seed bank, but so did seedlings of *Ceanothus cuneatus* var. *fascicularis*. Similarly, after the 2018 Camp Fire, *Arctostaphylos mewukka* subsp. *truei* seedlings are intermixed with *Ceanothus cuneatus* seedlings.

So, while fires keep burning down much of developed California, areas dominated by chaparral will recover quickly because of their long history with fire. *Ceanothus* will be more prominent in younger stands than older stands as *Arctostaphylos* tops them. Next time you have the opportunity to visit a post-fire area, look to see if both genera are present.



Burned *A. purissima* after the Rucker Fire.

UNFOLDINGS

“It’s not how old you are, it’s how you are old.”

— Jules Renard

“The afternoon knows what the morning never suspected.”

— Robert Frost

“I’ve enjoyed every age I’ve been, and each has had its own individual merit. Every laugh line, every scar, is a badge I wear to show I’ve been present, the inner rings of my personal tree trunk that I display proudly for all to see. Nowadays, I don’t want a “perfect” face and body; I want to wear the life I’ve lived.”

— Pat Benatar

“This is the most beautiful place on Earth. There are many such places. Every man, every woman, carries in heart and mind the image of the ideal place, the right place, the one true home, known or unknown, actual or visionary.”

— Edward Abbey

“Our task must be to free ourselves by widening our circle of compassion to embrace all living creatures and the whole of nature and its beauty.”

— Albert Einstein

“Live long and prosper.”

- Spock

“Early one spring, after several days of scouting, I stopped at a hotel in a small southern California town to clean up. The little maid, coming in with an armful of towels, stopped short in the middle of the room, threw back her head, and began sniffing the air like a warhorse. I watched in some perplexity. “Chaparral!” she said wistfully. “Oh! You’ve been in the chaparral!”

— Lester Rowntree

“Máthe ton eafó sou.”

Translation from Greek: *Know thyself.*

— Temple of Apollo at Delphi

“We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.

— Aldo Leopold

“a life can change in a tenth of a second.

or sometimes it can take

70

years.”

— Charles Bukowski

“To be admitted to Nature’s hearth costs nothing. None is excluded, but excludes himself. You have only to push aside the curtain.”

— Henry David Thoreau

“Only within the 20th Century has biological thought been focused on ecology, or the relation of the living creature to its environment. Awareness of ecological relationships is — or should be — the basis of modern conservation programs, for it is useless to attempt to preserve a living species unless the kind of land or water it requires is also preserved. So delicately interwoven are the relationships that when we disturb one thread of the community fabric we alter it all — perhaps almost imperceptibly, perhaps so drastically that destruction follows.”

— Rachel Carson

“But Dame Nature knew her business when she developed the chaparral. Without it the mountains of the Southwest would be stark pinnacles and naked ridges, the foothills barren, rocky slopes, and the valleys nothing but beds of cobble-stones and gravel.

— Francis M. Fultz

“Grow old along with me! The best is yet to be.”

— Robert Browning