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# All he's saying is give brush a chance

Photo: Mark Boster / Los Angeles Times

Rick Halsey stands in a burned-out area near Escondido. He hopes to correct the record about what he considers California's most widespread, misunderstood and maligned type of vegetation.

Naturalist Rick Halsey says it's absurd to prescribe burns of backcountry California chaparral.

By Joe Mozingo
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Rick Halsey is in search of senile shrubs.

He rolls up California 79 in his Chevy pickup across the high tablelands of eastern San Diego

County. Past a little adobe chapel from the Mexican era, he turns onto an unpaved road. He bumps along in low gear as the road rises into the granite mountains as a brilliant sliver of scarified earth, passing through gnarled stands of manzanita, red shank and chamise.

In a shallow basin called Indian Flats, he comes to an abrupt stop.

"Let's say hello to this guy," says Halsey.

The rangy naturalist strides across a ditch as if he's meeting a long-lost friend. He climbs the side of a boulder, crouches in the shade of a 15-foot manzanita and gazes at the burnished red skin of its bark against the mountain sky.

"This guy might be 125 years old," he says, giving it a pat.

He knows many forest managers would call this old hardwood "senescent" or "decadent" -- terms for native vegetation that has supposedly gone un-burned for too long and is thus an unnatural fire hazard.

Halsey, 53, likes to point out the absurdity of this theory, as he sees it, by simply calling the plants "senile," as if the manzanita were in an advanced state of dementia.

Chaparral, he says, does not need to burn to the ground every 30 years to remain healthy. Just the opposite. Too much fire will eventually decimate the native flora -- some of the most diverse in the nation -- leaving a biological wasteland of invasive weeds.

Many people might not know the difference, viewing chaparral as a brown, dead thicket of thorns and brush.

But with the help of top botanists and fire ecologists, Halsey is on a campaign to correct the record about California's most widespread, misunderstood and maligned type of vegetation.

In doing so, he hopes to limit brush clearance plans to the edges of suburbia, away from the backcountry.

In the heat of the fire season, this might seem a futile mission. But Halsey is a true believer.

Like the shrubbery he promotes, he is a bit quirky, with a child's mix of untethered imagination and energy that is labeled eccentricity in an adult, and that his wife lovingly tolerates. He built his family home in Escondido to resemble a medieval castle, with a watchtower and a working drawbridge and a long, dark den filled with swords and suits of armor.

But he and his ecological research are respected by leading minds in the field.

The former high school biology teacher founded the California Chaparral Institute, a nonprofit environmental group, and gives talks all over the state.

Through science, Halsey wants to show chaparral's subtle beauty and the limits of its remarkable adaptations to survive.

It is a lesson in the ecology of drought and fire.

The story of the senile Eastwood's manzanita, its muscular root anchored to fissures in the granite boulder, is as good a way as any to start the lesson. The stocky stalwart with a bright green head of leaves was actually born of fire.

As a seed, it fell from its parent and, by good fortune, landed in a crevice in the rock where water and dead leaf matter naturally amassed. It may not have sprouted for years. In fact, the seed may have just sat there, dormant, for more than a century.

Then came a fire. Smoke from its incinerated forebears woke the seed.

Scientists don't understand the precise chemical mechanism of this process, but it is the only way to germinate the five species of manzanita in Southern California, as well as many other endemic plants.

As fire destroys one generation, it primes a new crop.

When the next rains came, the seed sprouted, its rock confines actually helping it. Manzanitas have strong roots that pry open fissures and hair-like capillaries that extract microscopic drops of moisture from between the crystals in the granite. In fact, the rock actually retains water much better than soil does.

While evaporation off the leaves pulls water and nutrients up through the roots like juice through a straw, the manzanita must drink slowly in this dry terrain. Its silver-green leaves point to the sky so the midday sun doesn't beat down straight on them. Fine hairs create a buffer layer of air around the leaf to limit wind from speeding up the evaporation process. And the microscopic pores in the leaves where the water exits -- the stomata -- are narrow, sunken and tangled with hair.

"The stomata on a manzanita look like an old man's ear," said Halsey. "Full of hair and wax."

This slows photosynthesis and growth.

So a century-old plant such as this one is only 15 feet tall -- and Southern California is a land of shrubs.

Hiking through the chaparral and coastal sage scrub of Southern California, Halsey never gave much thought to the shrubs. It wasn't until the mid-1980s, when he was teaching biology at Serra High School in San Diego on a windy day, that a crusty old sycamore leaf drifted through the door like a drunken epiphany.

"Let's go down in the canyon," he told his students.

Halsey didn't know much about the plant life, but he knew his insects and birds. As a child, he spent hours at a time hunting the canyons around Goleta for butterflies and bees.

Soon, he had his students help him cut a trail, and he held two lessons a week in the canyon next to school. He taught the children bird calls and quizzed them the next day. But he was at a loss for words when it came to the vegetation. He asked another teacher, an amateur botanist, to teach him about the plants in the canyon.

"It was an explosion of knowledge for me," he said.

His relationship to the land sharpened and deepened.

"There's two ways to go to a party," he said. "You can go to a party and stand there and not really know anybody's names. Or you know them and their names. It's a whole different experience."

A San Diego Tribune reporter who visited his class in 1990 found them singing, a la Julie Andrews: "The chaparral is alive with the sound of the rufous-sided towhee -- cluck, cluck, cluck, cluck, cluck."

That year, Halsey was named teacher of the year for the San Diego school district.

He got a grant and started writing a book about the chaparral, meeting with scientists, environmentalists and firefighters.

Soon, having the good fortune of a business consultant wife who could pay the bills, he quit teaching to become a full-time researcher, writer and advocate of under-loved native shrubs.

The antipathy to the shrub land goes way back. For the Indians, it was an impenetrable thicket that offered little in edible seeds and hid monstrous grizzly bears. The Spanish missionaries brought the word chaparral, derived from *chaparro*, a dwarf oak that grows in Spain. The American ranchers who came in the late 19th and early 20th centuries just wanted to get rid of the stuff, as they ultimately did with the

grizzlies. They called it "brush."

The name stuck, as did its image, particularly as suburbia pushed into the wild lands in the last half-century.

Devastating firestorms in 2003, 2007 and the last two months have only worsened chaparral's public relations problems.

But it is an insult to nature's ingenuity, Halsey said, to label the vast biodiversity of California's most extensive plant community "brush" and to discuss it only in terms of "fuel load."

"People have a really twisted view of this beautiful ecosystem," Halsey said.

Jon Rebman, the curator for botany at the San Diego Natural History Museum, said San Diego County alone has 1,573 species of identified native plants -- more than any other county in the contiguous United States.

There are 492 types of birds, an estimated 500 native bees and 148 types of butterflies.

All of this variation is a product of the same geological commotion that gives Southern California its dreaded earthquakes. Within 100 miles between coast and desert, the shifting tectonic plates have left a crumpled hump of micro-climates, soils and substratum churned up from the depths -- with plants evolving into every niche.

Red shank stays to the high granite country. Thornmint sticks to the clay hardpan on the mesas. Prickly pears grow in thin soils of the low, south-facing slopes.

"If you get people out in the field, they are blown away by the diversity," said Rebman. "It's like: 'Oh, my God, in the canyon behind my house there's like 250 species of plants.' "

Perhaps the most remarkable are the perennials that rise like the phoenix from a fire's ruins.

When chaparral burns, the smoke awakens all types of wildflower seeds lying dormant in the soil. Some of these may not have sprouted in the area for a century or more.

Eventually as the larger shrubs start to re-grow and overtake them, the ephemerals vanish until the next fire.

The problem is, nowadays, that might come too soon.

How often fire burned through Southern California before humans arrived is the subject of much scientific and public policy debate.

The only nonhuman source of fire is lightning.

But does lightning spark many brush fires in Malibu? And does lightning occur during blue-sky Santa Ana wind conditions?

The answers are no.

Fire prevention policy has centered on a much-disputed study published in 1983 in Science magazine, which suggested that modern fire suppression had caused too much fuel build-up. In the article, UC Riverside professor Richard Minnich concluded that, historically, fires were small and burned frequently -- leaving a patchwork mosaic of fuels of varying ages that prevented fires from scorching vast acreage. He believed chaparral less than 20 years old didn't have enough dead material to burn.

This encouraged land managers to conduct prescribed burns in the backcountry to get rid of the old, most volatile fuel.

But many scientists have since rejected the findings.

Hugh Safford, ecologist for the U.S. Forest Service Pacific Southwest region, said wind-driven fires roar through young chaparral and old chaparral alike. While older vegetation has more dead wood to

intensify the flames, it matters only when the vegetation is adjacent to homes.

"Under Santa Ana wind conditions, it doesn't matter how old it is," he said. "Re-burns in 3-year-old chaparral are common, and some of these fires even burned through 1-year-old chaparral."

Jon Keeley, a fire ecologist for the U.S. Geological Survey, suspects the pre-human wildfires were huge -- but happened only once a century in any given area. The likely mechanism: Lightning during a monsoonal August storm started a fire in the high mountains that smoldered for months; the Santa Anas picked it up in October or November and drove it all the way to the coast.

Because native Americans didn't arrive in California until about 10,000 years ago, and evolution takes much more time than 10 millenniums to do anything worthwhile, this model is what the plants adapted to.

What the plants did not have time to adapt to, Keeley said, is fire every 10 or 20 years, as has been happening in recent times. The chaparral and coastal sage scrub -- a related plant community with many of the same species -- aren't growing back in areas that are burning frequently, letting the weeds take over.

"It's a real paradox," said Keeley. "You have these species that are absolutely fire-dependent. But the one thing wiping them out is fire."

This has been Rick Halsey's crusade of late.

The San Diego County Board of Supervisors is debating whether to start burning vast swaths of the backcountry. This basin with the senile manzanita would be a prime candidate.

"I want people to look at this and say with a straight face, 'This is trash,' " Halsey said, opening his arms to a plateau of manzanita, yucca, ceanothus.

He said these old stands are the ones the grizzly bear on our state flag loved, with a canopy high enough that the bears could lumber through corridors looking for food.

Halsey has been working with county staff, trying to change the fuel management plan they're proposing.

"One, it's not going to work," he said. "Two, it's a waste of taxpayer money. Three, it's not science-based. It's just political expediency."

Halsey is all for targeted brush thinning and clearance near homes and even favors strategic prescribed burns of old-growth chaparral near communities.

But burning the backcountry over and over is going to deal the fatal blow to the natural ecosystem.

"You wouldn't go remove the redwoods," he said. "That's what they're doing here."

*Mozingo is a Times staff writer.*