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## The Ancient Manzanita Boneyard of Agua Tibia

Exploring the remains of one of Southern California's last old-growth stands of chaparral

By Richard W. Halsey

It was spontaneous. The best adventures often are.

I've heard about the ancient giants of Agua Tibia in the Cleveland National Chaparral Recreation Area (still misnamed a "Forest") for years and I have always wanted to go there to see them for myself. Whenever the place was mentioned, people who knew would describe it in hushed tones. The giants had a way of affecting people, people who understood. A veteran firefighter who had worked to extinguish the devastating Vail fire in 1989 that ravaged the secret valley where

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## Pechanga Cyphelium: a lichen of old-growth chaparral in Southern California

**This an exclusive contribution to The Chaparralian that details the rediscovery of a rare lichen species found only on old-growth chaparral. -Ed.**

By **Kerry Knudsen** and **Jana Kocourková**

Lichens are a symbiosis between a fungus and an alga, grow on rocks and soil and bark, and are often brightly colored: orange, red, or yellow. There are over a thousand species reported from California, over 4,000 species from North America, and over 15,000 species world-wide. To look at lichens and get more information, check

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## USFS Firefighters Need Your Help

Over the past eight years there has been an effort to privatize much of what the US Forest Service does for the public. One of the impacts of this effort has been the loss of federal firefighters to other agencies that offer better support in the way of stronger leadership, higher morale, and better pay and benefits.

In testimony to Congress on April 1, 2008, US Forest Service Chief Abigail Kimball and her boss, Undersecretary of Agriculture Mark Rey, failed to support the US Forest Service firefighters they represent by dismissing critical problems facing USFS firefighters today. Due to ignorance

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## Tom Chester A True Chaparralian



When was the last time you've met a world class astrophysicist from Caltech who decided to change his life, re-focus his enthusiasm for learning, and become one of the foremost botanists in Southern California? In a style that would make Richard Feynman smile, Tom Chester challenged conventional wisdom, put his hiking boots on, and spread his enthusiasm for the natural world (and native plants in particular!) to anyone he met. Tom's love of life and passion for finding answers to intriguing questions is infectious.

Although Tom has always loved plants (he has been an experienced gardener since Kindergarten), his days as a Chaparralian really began in 1996 when he first visited the Santa Rosa Plateau ecological preserve (SRP) north of Fallbrook, California where he lives with his family. He immediately became enchanted by the plateau's vernal pool complex and began recording observations about how the pool changed over time as well as the flowers he found there. It wasn't long before he began to develop a comprehensive plant list for dozens of hiking trails.

Botanizing, volunteering as a docent at both the SRP and Santa Margarita ecological reserves, and spending countless hours trying to decipher botanical taxonomy-speak transformed this amateur field biologist into a first class botanist and taxonomist. But it was rough going at first. When Tom bought his first book on California native plants in 2000 (Munz), he was extremely disappointed. "I couldn't read a single word of it. It was all Greek to me!" Tom became a full time natural historian in 2003, nine years after he slowly began easing into retirement from Caltech.

Tom published his first botanical paper in the 2007 (along with co-authors Wayne Armstrong and Kay Madore) on their discovery of a new species of brodiaea (*Brodiaea santarosae*), a beautiful plant found only in the basaltic soils on the SRP (see photo at the top right of this page). You can download a copy of Tom's paper on his website: <http://tchester.org/plants/analysis/brodiaea/santarosae.html> It's a brilliant piece of work and a testimony to what can be achieved through independent scientific inquiry.

For many of us who know him, Tom's most prominent personality characteristic is his willingness to help others learn. "Tom Chester has made me appreciate our Southern California flora perhaps more than any other person," said his colleague Wayne Armstrong. No matter what question he's asked, Tom takes the energy required to find the answer. The excitement he shares when discovering something new clearly indicates he has refused to allow adulthood to rob him of his unquenchable sense of curiosity.

Astrophysicist, botanist, natural historian, teacher: Tom Chester...a true Chaparralian.

-RWH



## Lichen cont' from pg. 1

out Wayne Armstrong's excellent website:  
<http://waynesword.palomar.edu/lichlist.htm>

Lichens are generally slow growing, often spreading less than a fraction of an inch a year in Southern California's Mediterranean climate. They occur in microhabitats that are relatively undisturbed by development, frequent fires, and invasive weeds. This distribution in Southern California is primarily an effect of their slow growth in an arid climate.

In the Southern California chaparral communities lichens are frequent on rock outcrops, particularly on north slopes, and on soil in thin-soiled openings. Many species can be found on old-growth chaparral, particularly on the wood of senescent chamise (*Adenostoma fasciculatum*). But in areas with frequent fires (every twenty years or less), through either controlled burns or human-caused fires, it is not unusual to find vast stretches of chaparral with no lichens at all on the shrubs and even on rock outcrops or soil.

In the Santa Monica Mountains, we believe fires happened as seldom as every one hundred and twenty-five years before the advent of modern urbanization. Now fire frequency is every ten-to-forty years. From 1890 to 1915 the pioneer California lichenologist Herman Hasse collected lichens regularly in the Santa Monica Mountains. His collections are preserved at Harvard and the New York Botanical Gardens. He collected over a

The species is probably only associated with old-growth chaparral, growing on shrubs that have died naturally of old age and not burned. Because of frequent fires, old-growth chaparral is relatively rare now in Southern California.



**Pechanga Cyphelium** at 25X. This is the holotype collected in Murrieta by Hasse in 1903 on dead wood of chaparral.

dozen new species of crustose lichens and fungi that grew on the bark of chaparral shrubs and many of them he described as common (Hasse 1913). Now with increased fire frequency, I have been unable to find many of these species even though some of the more conspicuous and faster growing lichens are still present. For example, one species, *Bacidia veneta* S. Ekmann, endemic to Santa Monica Mountains, was particularly common on chaparral mallow (*Malacothamnus fasciculatus*) in Hasse's time. This species may now be extinct because of frequent anthropogenic fires. We have made no modern collections but still hope to find some existent populations.

*Cyphelium* is a genus of crustose lichens common on unburnt wood and old bark, especially in montane habitats on conifers. There are 12 species world-wide. Eight of these species are known from California. Two species, the brown-colored *C. brunneum* W.A. Weber (the only species that occurs on rock) and the gray *C. chloroconium* (Tuck.) Zahlbr. on oak bark, are only known from Southern California and Baja California (Tibell & Ryan 2004). Both are rare in nature.

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In Southern California in 1903 on the dead wood of chaparral in Murrieta in western Riverside County, Hasse collected a yellow *Cyphelium*. One of Hasse's 1903 Murrieta collections ended up in a private herbarium in the Czech Republic. During World War II, the lichenologist Nádvořník saw this specimen and realized it was new to science and described it as *Cyphelium brachysporum* Nádvoř. The image of the holotype accompanies this article: the yellow is faded but would have been brighter when fresh.

The species was forgotten. Eventually, based on a single duplicate specimen of the 1903 Hasse collection, the Swedish lichenologist Leif Tibell thought it was an immature specimen of another *Cyphelium* with very different spores (Tibell et al. 2003) and completely dismissed the species. This year Dr. Jana Kocourková, the lichen curator at the National Museum of Prague, found the holotype collected in 1903 and recognized it was a good species. She contacted me immediately because she has collected with me in Southern California and knew I lived in the Menifee Hills in Wildomar, near Murrieta. James C. Lendemer at New York Botanical Garden and myself immediately examined specimens collected by Hasse in 1905. We agreed with Kocourková that *C. brachysporum* was a good species and the spores were mature. To protect the biodiversity of the lichen flora of California we immediately prepared a taxonomic re-evaluation of the species, rejecting the earlier taxonomic work of Tibell et al. (2003), which will be published later this year in the international mycological journal *Mycotaxon*.

Hasse's 1905 collections were definitely collected off the wood of *Adenostoma fasciculatum*. We will call *Cyphelium brachysporum*, Pechanga *Cyphelium*, for the band of Luiseño Indians that lived in the Temecula Valley that includes the Murrieta area. The species is probably only associated with old-growth chaparral, growing on shrubs that have died naturally of old age and not burned. Because of frequent fires, old-growth chaparral is relatively rare now in Southern California. Beginning in the Wildomar-Murrieta area, we will explore stands of old-growth chaparral for Pechanga *Cyphelium* south to the border. We believe we will eventually find populations but it could be quite rare and need special protection with its habitat of old-growth chaparral. Our observations of old-growth chaparral in southern California and the results of our search will be published in future issues of *The Chaparralian*.

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### Cited Literature

- Hasse, H. E. 1913: The lichen flora of southern California. Contributions from the United States National Herbarium 17: 1-132.
- Tibell, L., Titov, A.N., Lisická, E. 2003. Calicioid lichens and fungi described by J. Nádvořník. *Mycotaxon* 87: 3-24.
- Tibell, L., Ryan, B.D. 2004. *Cyphelium*. In: Nash, T.H., III, Ryan, B.D., Diederich, P., Gries, C., Bungartz, F. (eds.): Lichen Flora of the Greater Sonoran Desert Region, Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona, pp. 82-88.

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(or worse) they led Congress to believe the following false statements.

1. There is not a problem retaining US Forest Service firefighters.
2. The pay of US Forest Service firefighters in California is similar to that of comparable agencies such as CDF (CalFire).
3. US Forest Service firefighters are not firefighters, but "Forestry Technicians."
4. US Forest Service firefighters are not responsible for saving lives and property.

### The TRUTH

1. The Region 5 (California) USFS Forestry Aid/Technician attrition rate is 38.84% over the national average for federal employees. Significant numbers of veteran firefighters are leaving the US Forest Service for better working conditions elsewhere.
2. Pay for US Forest Service firefighters is significantly lower when compared to other firefighting agencies.
3. To declare that US Forest Service firefighters are not firefighters because of a bureaucratic definition is absurd. To use this "classification" to deny what federal US Forest Service firefighters actually do demeans their personal sacrifice and the vital service they provide the public.
4. US Forest Service fire engines carry life saving equipment and use it frequently. Do Kimball and Rey really think US Forest Service firefighters are going to drive by the scene of an accident and say "Look! Call 911" and keep driving? US Forest Service firefighters are often the first to arrive on the scene of an emergency in many rural areas.

Please contact your US Representative and US Senator and ask them to search for the truth about what is really happening to the US Forest Service firefighters we trust to protect our lives, our communities, and our nation's natural resources. For additional details including Kimball's and Rey's testimony, see our page on Firefighters on our website: <http://www.californiachaparral.org/afirefighters.html>



## Manzanitas cont' from pg. 1

the giants lived told me he had tears in his eyes when he had to take one down with a chainsaw. "We were building a fire line to keep the blaze contained. It was horrible. I'll never forget it. Their trunks were as big as my waist."

The giants I am speaking of are manzanitas, more specifically, bigberry manzanita (*Arctostaphylos glauca*). The species can be found from Mt. Diablo in the San Francisco Bay area to San Diego and into a portion of Baja California. If left alone by fire, it can live for centuries and has a habit of growing over twenty feet tall. One could easily consider the species the "redwood" of the chaparral.

"We were building a fire line to keep the blaze contained. It was horrible. I'll never forget it. Their trunks were as big as my waist."

Having fallen in love with chaparral, the most reasonable extension of my passion has been to search out and find the ecosystem's oldest and most beautiful botanical ambassadors. Over the past few years I have found old, shaggy-barked sentinels of red shank decorating a protected hillside in San Diego County, clusters of ancient, thick-trunked chamise guarding a quiet bay on Catalina Island, and a massive toyon overlooking the Pacific Ocean. But the fabled manzanitas of Agua Tibia were the ones I always wished I could have seen. "Could have" because I was told numerous times that my quest was too late. They had all burned in the 1989 fire.

I've often thought about where I was when this fire occurred, what I was doing. I don't even remember the fires themselves because fire was not part of my life back then. I was too busy building a home and a family, enjoying my

teaching career, and a multitude of other things, things other than wanting to find ancient giants of the chaparral. Like most, I didn't even know they existed.

Ancient manzanitas occupy a special place in the heart of every Chaparralian. They represent patience, endurance, and strength - three qualities we all strive for. When I look upon an ancient manzanita, I know I am experiencing a survivor. A survivor that has withstood a century or more of challenges: long periods of drought, inconsistent bursts of rain, and the ever present threat of fire.

Yet ancient manzanitas remain vulnerable and sensitive. Despite their incredibly dense, hard wood, their life's essence is exposed, unprotected. The vital, thin layer of living tissue surrounding the wood is right at the surface, covered only by a paper-thin layer of red bark. In fact, such a delicate coating could scarcely be considered bark at all. This lack of armor allows the beauty of the wood to be revealed. Smooth expanses are interrupted at the junctions of past and current branches, similar to folds of red clay, delicately wrinkled like smile lines on an old friend's face. This juxtaposition of strength and vulnerability sings to me.

Despite warnings that the manzantias of Agua Tibia were gone, I maintained my dream to someday find the secret valley they once lived, in hopes of finding one that had escaped the flames, or at least a chance to see the ancient bone yard of those that had perished. So when the call came from a fellow naturalist that tomorrow was the day, I pushed everything aside and prepared to go.

I had not seen my friend Tom Chester for a long time. We had been talking about going up to Agua Tibia for at least four years. If there was anyone who would be able to help

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## Manzanitas cont' from pg. 6

me locate the last remaining manzanitas, Tom would be the one. His skills as an intrepid botanist are legendary (see the “True Chaparralian” article on page 2 of this issue).

We started our quest at the Dripping Springs trailhead, named for a spring that is unfortunately found on the other side of the road, State Highway 79, not along the trail itself. Walking through a Forest Service campground closed during the spring months to give the arroyo toad a chance to breed without disturbance, Tom and I hiked several hundred feet, then stopped to look at an interesting plant. We stopped again to look at another one fifty feet further on. Approaching the stream crossing, we stopped for a yet another. This was not the way to get up the mountain, but is the way of the naturalist. “This is why I don’t usually make it all the way to the top,” Tom said with a smile. “There are so many interesting things to see.”

When confronted by a skeptical audience, one filled with folks who do not make nature a part of their conscious lives, I struggle for ways to communicate why the natural environment is so beautiful and why it provides such an important connection to life. My recent approach has been to relate a story concerning our backyard.

About 10 years ago I employed a chainsaw and several applications of herbicide to help return our yard to its native condition. I planted large chaparral shrubs to define its outer boundaries, islands of softer *California sage shrub* species (a more fitting name than “coastal sage scrub”) to bring subtle colors near the house, and various grasses to create low growing contrasts. I even inoculated the new plant community with a few native insect species collected from nearby wildland areas. The harlequin bug was especially fun to scatter over the bladderpod. Then I waited.

The first sign that I had successfully created a thriving biological community occurred within



Colonizing a backyard. A spotted towhee stakes a claim, helping to return land back to its native state.

five years. Spotted towhees showed up, jumping around in the leaf litter. Their trilling calls are regular part of the landscape now. A regular spring visitor is a male who continually pecks at its own image in our patio window, a vain attempt to bully an imagined competitor. Two years ago I heard a wrenit, singing its ping-pong melody within the depths of our garden shrubland. I have yet to see a nesting pair, but I suspect that will occur someday soon. And then this past winter, winding its way across the tops of several buckwheat plants, were the orange spaghetti strands of witch’s hair, delivering the unmistakable message that wild had returned to our small parcel of nature.

When I describe this transformation, I try not to tell my audience what I felt when I witnessed each new sign that nature was coming back, nor do I tell them how they should feel about it. I just share the story. I’m hoping that they will sense why such things are special and perhaps begin to understand why nature can be important to them and their own families. This was one reason I went to Agua Tibia, for a story to share. I wanted to experience the magic myself so I could come back and spread the word.

As we climbed up the mountain trail, Tom and I passed dozens of ceanothus shrubs that had

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died during the last several years of drought, their naked, skinny stems curling inward, looking as if they had withdrawn in pain at the very last moment. The rain had come this year, but it was too late for them. The chamise and red shank, however, were bright green and wildflowers decorated both sides of the trail. Then the striped racer appeared.

It was in the middle of the trail in a coil, an unusual position for a snake known for its quick movement. But as we approached, it was clear the movement was no more. The racer was dead. As I bent down to get a closer look, the cause of death



**Dead striped racer.** The murder of a wild animal creates an uncomfortable dichotomy.

was obvious. Imbedded into the snake's broken body was the unmistakable impression of a Vibram boot sole. At first, I left the snake where it lay, but as I walked on a growing sense of sadness and obligation gripped my heart. I turned back, gently picked up the little animal and placed it under the chaparral canopy.

As I rejoined Tom, I told him what I had done. "The body was still soft, so whoever did this is probably up ahead." We discussed the various things we would say or do to the perpetrator when we met him. We never did.



**Dead ceanothus.** The ravages of the last 10 years of drought are first felt by the non-sprouting ceanothus species.

I wondered if the murderer went home that night and said "I love you" to an awaiting family or friend. I wondered how smashing the life out of a beautiful animal with the heel of a boot fit into that dynamic. Such a dichotomy must be uncomfortable, because an individual can't be truly peaceful in one context while hateful in another. I think this helps explain why so many of us become saddened when something in nature is injured or eliminated, be it a single individual, a species, or an entire natural community – all life is sacred no matter what its manifestation.

After another hour of walking we found the first skeletal remains from the 1989 fire, a 20-foot frame of an old red shank, resprouting from its base slowly restoring the elfin forest that once was. It marked the gateway to the secret valley of the Auga Tibia manzanitas.

Entering the valley required traveling through a long tunnel enclosed by overarching boughs of blue flowering ceanothus. Fed by a moist drainage, the tunnel was remarkably lush with a multitude of insects busying themselves as they collected the richness provided by the flowers. As the trail ascended a small hill, the tunnel opened up, allowing us to look back from where

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**Red shanks reborn.** Charred skeletal remains tower over 20 years of re-growth.

we had come. Red shank skeletons dotted the horizon and ceanothus shrubs broke up the sea of green like scattered dabs of blue paint.

Tom walked ahead while I stayed a bit longer to enjoy the view. When I caught up with him, he pointed to the right and said, "Look."

Just off the trail were the remnants of our first ancient manzanita. It was a burned out stump about 18 inches high and 12 inches in diameter. Scattered about were a few charred branches.

After my initial excitement, I suddenly felt a nagging sense of disappointment. Was this all we were going to be able to see, just a few burned stumps? I wanted to feel the awe I was expecting to feel, but it didn't happen. I was



**Charred manzanita stump.** The first fossil.

hoping to see so much more.

After taking a few photographs, I packed up my camera gear and hiked further down the trail to find Tom. He had gone ahead again.

As I rounded the bend, Tom was sitting on a log with a Cheshire cat smile. "I thought you'd like to see this one." Stretching out on the ground in opposite directions were the split remains of a true giant, bleached white from twenty years of sun and weather. Tom was sitting on the largest section, 14 inches in diameter. Although fallen, the manzanita's bulk still dominated the scene. Fractured branches lay scattered about like so many pieces of broken china. This giant was at least two centuries old before the flames extinguished its life.

Unlike the common Eastwood manzanita (*Arctostaphylos glandulosa*) that is able to re-sprout after fire, bigberry does not. When a fire comes through, the adult shrub dies and the species depends on seeds to regenerate, seeds that are stimulated to germinate by chemicals found in charred wood or smoke. Such an adaptation has led some to claim that manzanita "needs" fire to survive. In fact, a popular hiking book for the area has claimed that the ancient

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manzanita grove that burned in this valley was “unnatural” and wouldn’t have existed had it not been for past fire suppression efforts. Considering that these manzanitas were a century or more in age before organized fire suppression even existed and that lightning-caused fires are relatively rare in the area, it is clear that such thinking is erroneous. Rather than blaming wildland firefighters for “creating” an artificial formation, we should be praising them for protecting Auga Tibia as long as they did.



**The first giant.** Centuries old before being killed in the 1989 fire, this manzanita’s skeletal remains bleach in the summer sun.

After spending time with the fallen giant, taking its measurements, and marveling at the hardened wood that had protected its body from decay, I looked across the secret valley and saw dozens of its companions reaching through the chaparral’s green carpet. Despite twenty years, the skeletons have persisted, standing strong and tall above the green canopy; white, wooden fingers winding upward

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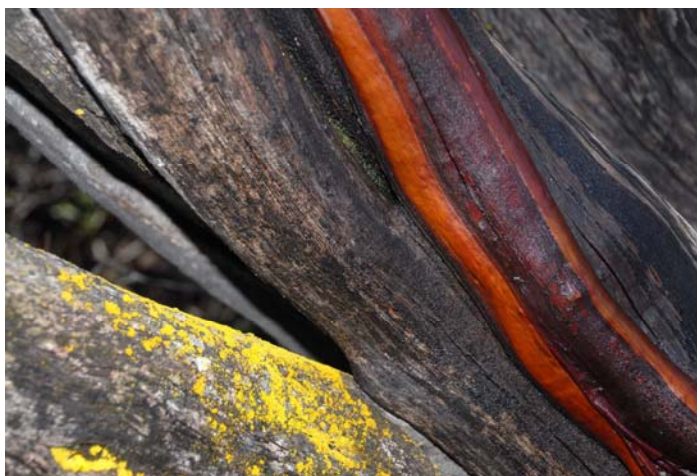
## Manzanitas from pg. 10

through the dense shrubbery grasping for light that is no longer needed - an ancient fossil bed of an extinct species, their bones frozen in time.

As we explored further, Tom and I were able to find a few living manzanitas that had survived the fire twenty years ago, although I have no idea how they did. Perhaps a boulder deflected the heat or a shift in wind sent the flames elsewhere. Regardless, their massive, blood-red frames stood as out as

guardians, protectors of the few youngsters that were born in 1989 after the flames had taken so many of their kind.

If given time, time *without* fire, these young manzanitas will continue to grow and ultimately restore the grove of ancient giants of Agua Tibia. It will not be until our great grandchildren decide to wander out and enjoy this magic valley, but with our wisdom we can help insure they will have the chance.



**Ribbon of life.** Only the red portion of this manzanita branch is alive. As branches in the canopy die, the supporting cambium on the trunk below fades away as well.



**Survivors.** The 1989 Vail fire left a few manzanitas unburned, a testament to what once was.

## The Myth of Fire Suppression: Part II\*

In our last issue, we began a three part series investigating why fire suppression has been incorrectly blamed for creating “unnatural” amounts of vegetation across vast landscapes, regardless of the ecosystems involved. Last time we covered the history of the idea and why it doesn’t apply to a large number of ecosystems. Below is a small sample of some of those ecosystems. Since organized fire suppression did not occur in earnest until after 1910 and likely did not have a significant impact on most ecosystems until much later, the long natural fire return intervals shown below call into question the conventional wisdom about “unnatural” fuel loads.

Plant Community	Approximate acres in Western US	Estimated natural fire return interval years	Fire interval source
Sagebrush steppe Ferry et al. 1995.	112 million	325-450: low sagebrush 100-240: Wyoming big sagebrush 70-200: mountain big sagebrush	Baker 2006.
Mojave desert MacMahon 2000.	34.5 million	Extremely rare (low elevations) to uncommon elsewhere	Humphrey 1974. Brooks and Minnich in press.
Sonoran desert W.H. McNab 1994.	24.7 million	Extremely rare due to lack of fuel, but invasive weeds are changing that.	
Lodgepole pine forest Alig and Butler 2004.	14.6 million (Rocky Mts.)	135-185: Yellowstone low elevations 280-310: Yellowstone high elevations	Schoennagel et al. 2003.
Pinon-Juniper woodlands West 1999.	74 million	400 years+ Mesa Verde	Floyd et al. 2004.
California chaparral Jones and Stokes 1987.	8.6 million	50- 150+: higher range at lower elevations	Keeley et al. 1986 Halsey 2008.
Fir-spruce forest Alig and Butler 2004.	19 million (Rocky Mts.)	300 years+ Colorado	Benson and Green 1987.

- \* The discussion of the political and social impacts caused by the myth of fire suppression has been postponed until our next issue. References listed above are available upon request.

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