

## Western Wildfires – Part One



*The Magazine of the American Landowner presents the first in a series by Field Reporter Joe Nick Patoski as he takes a closer look at the wildfires raging out West.*

The American West is on fire again, with wildfires breaking out across the Gila Wilderness in southwest New Mexico, around Ruidoso in southeastern New Mexico, and throughout Colorado. The Gila fire now ranks as the worst in New Mexico's recorded history. Colorado's High Park fire (pictured above) west of Fort Collins has destroyed more homes in state history. And all that was before summer even officially started.

Most western states have been experiencing drier-than-normal range conditions, and many regions are officially in drought. Conditions have been ripe for a major outbreak quite awhile. Maybe it's an old writer's faded memory, but it seems like massive wildfires used to happen every three or four years. Lately, it's pretty much an annual occurrence, a seasonal rite, if you will.

Last year, Texas burned. Four million acres were scorched and it took 16,000 emergency responders from all 50 states and Puerto Rico to tamp it down. Wildfires near Fort Davis in Far West Texas and around Bastrop in Central Texas were the two worst in state history.

Other states will have their turn soon enough. What's going on here?

Is this normal or an aberration? Where do wildfires fit into the big picture, beyond the considerable destruction and property damage in their wake? Who's paying to fight the fires and to mitigate property damage? The largest mountain pine-beetle epidemic in recorded history, which has ravaged western forests with 3.3 million acres of ponderosa, piñon, whitebark, lodgepole, and eight other pine species destroyed in Colorado alone, has created ideal conditions for fire. The pine beetle's success is tied to rising temperature, suggesting climate change is another enabling factor for increased wildfire. Forest

management practices are being scrutinized, as is the impact of humans. Before European pioneers arrived to establish permanent settlements, the natives let fires burn. Are we tilting against windmills trying to stop them? Most important, what can communities and individuals do to protect their land and to lower the risk?

We can argue about what it all means until we're gone, but the good news is there are answers to these questions. Accumulated data, good science, history, facts, truths, and verities all tell stories worth telling that inform and expand our knowledge about western wildfires.

Over the next few weeks, while the western forests and rangeland burns, we'll visit with some folks whose perspectives on fire, ecosystems, biology, prescribed burns, economics, erosion, range science, meteorology, and, of course, land ownership have the potential to inform and enlighten if we're willing to read, listen, and ponder. That won't stop the fires from breaking out, but it can certainly make our responses smarter.

### **Past Present & Future – Part Two**



*This is the second in a series of posts by Field Reporter Joe Nick Patoski that looks at the wildfires currently raging out West.*

With the Waldo Canyon and the House Park fires raging for weeks, the month of June goes down as the most destructive for wildfires since Colorado became a state.

It wasn't always this way.

Early accounts of wildfires in the American West by European settlers were spotty, at best, mainly because the West is so big and there were so few settlers, at least at first.

When forests burned, there was very little anyone could do in response to protect property but let the fire burn, which is precisely what Native American tribes did when a big burn ignited.

Fire-fighting techniques have improved considerably over time, especially in the past 25 years. But even with the development of fire-retardants, employment of aircraft, smarter strategies, and constantly better technology, wildfires persist. If anything, man appears to be losing ground to nature on flame front.

Fire is part of a forest's life cycle, taking down dead and sickly timber, clearing out brush and understory, and scarifying seedlings that require intense heat in order to germinate. It works the same way on prairie grasslands and the plains. Without fire, the vegetation wouldn't thrive.

Even severe fires caused by heavy fuel loads are normal cyclical occurrences; the big differences are how the cycles have become more frequent, and how more than a century of fire suppression as sound land management, a philosophy spurred largely by the establishment of cattle and other livestock operations, has created an unprecedented heavy fuel load.

It's important to note that different types forests burn differently, depending on the dominant forest tree and elevation. A century can pass between severe wildfires in high elevation forests dominated by lodgepole pine, aspen, spruce, and Douglas fir. Lower elevation forests with piñon pine, and junipers tend to be drier which leads to more frequent fire events – every decade or two. This keeps forests open and less dense.

The West used to be emptier too. Construction of homes in and around forests has skyrocketed since the 1970s, creating a precarious wildlands-urban interface (WUI) as Colorado State researchers David M. Theobald and William Romme label it. As civilization encroaches, management of forests becomes considerably more difficult. And what provides bucolic scenery most of the time to those arboreal interlopers also provides all the necessary tinder to leave nothing but ashes if flames reach a domicile.

Nationwide, the WUI encompasses an area about 14% larger than the state of California, with an estimated 89% of that wildlands-urban interface privately-owned. That means it is private landowners who will most likely shoulder the burden of wildfire management and prevention strategies such as managed thinning of forest and prescribed burns. Federal and state government planning is limited to federally- and state-owned lands.

Still, sound management practices can only do so much. Increased human population, construction in the wildlife-urban interface, a build-up of tinder in the understory due to more than a century of fire suppression are mere enablers compared to a warming climate. Increased temperatures leading to earlier spring thaws and less snow melt appears to be the biggest driver behind the increase of severe wildfires.

The West was considerably wetter when wildfires in the American West first began to be studied. The climate has turned drier over the past century and a half. Add to that a perfect storm of more immediate weather conditions: the interior West is in extreme drought and in late June, a record-breaking heat wave settled over the southern and central Rocky Mountains accompanied by dry humidity and winds.

Katharine Hayhoe is an atmospheric scientist at Texas Tech University. She is also the co-author of a study that appeared in the journal *Ecosphere* concluding the risk of wildfires in the American west will increase as a result of climate change.

“Climate change is shifting rainfall patterns around the world,” Hayhoe told the Living on Earth radio program. “We’re also seeing that climate change is increasing our average temperatures, which raises the risk of having those hot, dry conditions that we need for a wildfire to spread.”

Colorado is fortunate to have numerous experts at Colorado State University who are studying the past, present, and future of western wildfires.

“A great understanding has developed about historical fire stories in Colorado,” says Dan Binkley, Professor of Forest Ecology at Colorado State. “The first thing to emphasize is we have a grand variety of forests across the West, and the fire stories that go with the landscapes are very different for different types of forests.”

Depending on one’s location, property owners have tools to prepare and protect themselves and their property, says Binkley.

“For homeowners, the most effective options are to learn about ‘firewise’ treatments to reduce the flammability of the local area around a house; join with a community to develop a Community Wildlife Protection Plan; and work with the community and adjacent land managers, such as public land people, to reduce the most severe risks at landscape scales. “

Binkley recommends tapping into the [Colorado State Forest Service](#) for information on all the above options. The statewide forestry staff visits and works with Colorado landowners.

All well, and good, but reality has yet to catch up to the knowledge. Since 2002, the contracted fleet of airborne fire-fighting tankers that the US Forest Service depends on has declined from 44 to nine while there have been six deadly crashes, all of them involving aircraft more than 50 years old.

Similarly, the US Fire Protection Program Analysis system, which was launched in 2002 in response to a history of all-out fire suppression, has yet to be implemented, although the computerized program that would coordinate fire-fighting agencies and responders to assess and reduce risk and control costs, was supposed to be online in 2007.

The failure to efficiently coordinate agencies and responders mattered not a whit to Dr. Bonnie Warnock, chair of Natural Resource Management at Sul Ross State University in Alpine, who got a call at the school last year that her ranch was burning.

“My heart said *no* but my head said it was *OK*,” she said.

Dr. Warnock rushed to her place.

“It was very stressful. The whole back pasture was burned, the boundary fence was on the ground. What do I do? I had not planned at all. How do I deal with this financially and emotionally? We have to sell

one-third of our cows. We don't have enough feed. That's a capital investment for us that we are having to sell off and we'll have to buy more back," Warnock said.

She knew too well the fire was part of the process.

"Historically, our landscape did evolve with fire. If you're looking at it from a plant perspective, this is not a catastrophe. This is a natural occurrence for the semiarid ecosystem we live in. Typically, we have two or three wet years followed by a dry year during which lightning strikes cause wildfires. This process has maintained the grasslands and kept brush from encroaching."

That is, until the pioneers arrived and established permanent communities. "When early European settlement of this region began in the late 1800s, there was a lack of understanding of this process and land was overstocked and overgrazed," Dr. Warnock said. "Drought was something the settlers weren't experienced with. The overstocking and overgrazing removed the grass and fires disappeared from the Trans-Pecos."

Range science changed that practice. "Since the science of range management developed in the 1950s, our ranchers have done a good job," Dr. Warnock pointed out, while adding the caveat that even sound practices can do only so much.

"Through this most recent wet period, they haven't been overgrazing and overstocking, which has benefitted the ecosystem. But over the past three years, we've grown a huge amount of fuel in the Trans-Pecos, so the first fire in 100-150 years since the region had been settled was extremely large. It was so big we weren't prepared to deal with it. This is unprecedented."

As critical as the drought and wildfires have been, the next few months afterwards were even more critical. "If we get rain in the next month or so, the country will come back and look better. If it doesn't rain we will lose perennial grasses and see an increase of desertification," Warnock said.

This awareness has led to the formation of a non-profit association in Far West Texas that uses prescribed fire as a management tool to reduce fuel loads. "Going forward, this is something we need if we are going to have green grass," Dr. Warnock says, acknowledging a perception issue with prescribed burning from city and town dwellers and the new breed residing in the wildland-urban interface."

"These people are at the highest risk if a prescribed burn gets away and at the greatest risk from wildfire. Most of these people come from cities and are not supportive of prescribed fire. That makes it difficult to employ this tool," Dr. Warnock says. "There is a lot of support for prescribed fires by ranchers. We need to educate small landowners living on the edge of towns."

"We need to work on finding mechanisms to reduce accidents. How do you keep people from welding or throwing out a cigarette when there's 45 mile per hour winds and 2 percent humidity? "

Like the rest of us, even though she knows what she knows, Dr. Warnock has no interest in seeing it all happen again.

*Photo Credit: Don Savage Photography*

### Fighting Fire with Fire – Part Three



Now that the worst of the wildfire season appears to be behind us, this is a good time to take a longer view about fire and land – specifically the role of intentionally setting fire to grasses or forests as a land management tool.

Prescribed burns are part and parcel of holistic range management, which takes the long-range big picture overview of maintaining healthy rangeland and wildlife habitat. Before settlers arrived in the American West, the native peoples knew well enough to let the grasslands and woodlands burn when fire broke out because the fires germinated seed stock and provided fertilizer in the form of carbon. Even today, in Mexico and other less-developed countries, agrarian societies burning crop remnants every spring is considered part of the growing cycle.

Fear of fire prompted immigrants who established permanent settlements to suppress wildfires at any cost, which over the course of the past two centuries has contributed to building up considerable fuel loads. That, and a widespread reaction to clear-cutting that included not cutting any timber whatsoever, leaving deadwood standing, augmented over the past two decades by pine beetle infestations that have turned millions of acres of forests into kindling awaiting a spark, helped create the perfect storm for what's become an annual occurrence of wildfires breaking out throughout the American West.

The “Burn, Baby, Burn” approach utilizes smaller backfires to burn dry leaves, dry brush, and other tinder to reduce the amount of combustible material needed to create a wildfire. Sometimes, backfires can be set to stop a wildfire by denying the wildfire the fuel load it needs to spread.

Various states, counties, and communities have set up prescribed burn agencies, committees, and groups for certification, education, and in many cases, providing insurance in case a controlled burn gets out of control.

When folks think about parcels of land in the thousands of acres and legacy property owners who've stewarded over land for multiple generations, they rightfully associate such places with the American West.

But as much as the land has been fragmented and urbanized in the eastern and northeastern United States, the American East is on the cutting edge of forest management, especially in regards to prescribed burns as a management tool, largely because of the surprising number of large chunks of privately-owned land.

Where the Wilderness-Urban Interface is a relatively new concept out west, the juxtaposition of people and the wild world is an old story back east, which gives greater weight to the observations of four non-westerners – Bob Williams, William Haines, Jr., Chuck Leavell, and Brian Treadwell.

Williams, the vice-president of forestry operations for Land Dimensions Engineering in Glassboro, New Jersey, believes prescribed burning is essential for healthy land. "We need fire back in the forest, but in a controlled fashion, as the Native Americans did for thousands of years." Moreover, he says, the need for burning isn't confined to a specific region. "This is not a western problem," Williams makes clear. "I view this as a national crisis."

Williams likes to cite the use of prescribed burns by landowners in the eastern United States such as William S. Haines, Jr. of Burlington County, New Jersey. The 59 year old fourth-generation farmer grew up on the family's 14,000 acres spread, which includes 1,300 acres comprising New Jersey's largest cranberry bog, Hog Wallow, in Washington Township, the heart of the state's Pinelands, where the bogs are bordered by pitch pine, oak, and American white cedar.

His management of the woodlands shadowing on the Wading and Oswego rivers earned him recognition this year as New Jersey's outstanding forest steward by the state Department of Environmental Protection. A key to Haines' success as a steward is prescribed burning, which is employed to keep forest watersheds healthy with clean water – a critical component for any cranberry bog.

Haines' methods for ensuring good soil, clean water, and a healthy environment are pretty much the same for landowners in the American West.

Granted, conditions are generally wetter in Haines' New Jersey than in most western states, which makes prescribed burns less of a threat to neighboring properties. The unfortunate Cerro Grande fire near Los Alamos, New Mexico in 2000, started by a prescribed burn that got out of control, aided by low humidity and high winds, did considerable damage to public perception toward controlled burning.

But fire alone won't keep forests healthy. Haines' formula for sound forest management also includes thinning out deadwood and overgrowth.

Four states south of New Jersey, landowner Chuck Leavell of Georgia, who is being profiled in *The Land Report*, echoed Haines' sentiment. "We've seen in past years and decades, the terrible wildfires that destroy a lot of our forests. If only people could understand the value of prescribed burning. You know the Native Americans used to do it when they were living here without European influence. If we look to the wisdom of the way they were managing forestlands, we'd have less incidence of these wildfires."

Leavell learned about burning through a forestry and land use correspondence course he'd taken some years ago, then by talking to his consulting forester through the Georgia Forestry Commission and by talking to other landowners.

"Fire helps decrease the woody competition within a stand of pines," he said. "Let's all remember that that woody growth in the understory is competing with the pines for water and nutrients. By keeping that growth down, more energy is going to the pines. Secondly, while the fire discourages that woody growth, it is promoting the growth of natural weeds and grasses that benefit the wildlife. It is one of the best tools a forest landowner has, but of course it has to be used wisely and with caution.

Four states west are two Texas ranchers who have become prescribed burn specialists, Brian Treadwell and his father John. John Treadwell had been a student of holistic rangeland management, and when father and son began using fire to improve some beaten-down range on a ranch they acquired in west central Texas, they saw immediate results. Eighty burns and seven years later, native grasses such as Wilman Lovegrass, sideoats grama, bluestem, green sprangletop, switchgrass, and Indian grass, all of which need fire to germinate, flourished while invasive prickly pear cactus and mesquite trees were beaten back.

"When you open up a thicket with fire, there are plants that have been trapped in there that suddenly have access to air, moisture and light," John Treadwell said. "It's the solution to so many of the problems you see around here," added Brian. "We started a Calf Creek Burn Coop that turned into a Menard County Coop and McCullough County Coop," Brian said.

Their efforts, which cleared more than 1,000 acres of mesquite and prickly pear cactus and removed Ashe juniper from more than 3,600 acres, bringing back native prairie grasses in the process, earned the Treadwells a Lone Star Land Steward award from Texas Parks & Wildlife for restoring the land.

Since then, the Treadwells have moved on to ranches south of San Angelo, near the Treadwell family homestead, and received official Prescribed Burn training and certification, securing a \$1 million insurance policy to do business as a Conservation Fire Team.

It was in that guise that Brian Treadwell got involved with fighting the 12,000 acre Wildcat wildfire that broke out north of San Angelo in March 2011, lighting a 2.5 acre backfire that stopped the big fire's southward march.

Personnel from the Texas Forest Service were on the scene, but it was Treadwell who made the difference. "The Wardlaw brothers of San Angelo hired me to coordinate a response that included their best interests. The TFS regional chief happens to be the same man I log my prescribed fires with in this region, plus we had the history of four previous wildfires." So Treadwell did the deed.

It was one of several fires he worked in conjunction with the Texas Forest Service. "The first few, I was invited by an affected or threatened landowner, of which two landowners paid me a day fee for responding," Treadwell said. "After the Encino Fire, the TFS or fire chiefs invited me to respond."

Treadwell recalls the Encino Fire: "The north wind pushed the Encino fire across the Wardlaw ranch and threatened to cross the Arden Highway. We had already backed up two miles as the fire approached and there was a large response by area firefighters and the city of San Angelo. I told the TFS chief that if we



didn't stop the fire here, at this road using a backfire, we would be re-gathering another three miles south of our present location and have the same argument on Highway 67. As the fire threatened the fence line and bar ditch, I was given the green light to start burning. I responded with two men I regularly burn with and we proceeded to hustle in over two miles of fire, building the backline to 50-75 yards wide with a zig-zag pattern every two hundred yards, burning multiple strips, robbing the fuel from the approaching headfire. The picture I had sent you was of the backfire I lit meeting the headfire, but the amazing photo would have been the convoy of fire trucks, lights flashing, shadowing my movement in the pasture from the highway.

"That was a Monday. By noon on Friday the Wildcat fire was burning and TFS called me in to help on that one, too. The Wildcat fire threatened half a dozen houses, which preoccupied the responders to the point where the fire escaped and grew beyond control. We spent two days burning around houses and trying to contain the growth of the fire. Our mistake on the Wildcat was waiting for a final confirmation from the overwhelmed TFS chief to begin our backburns.

"The next fire was off of Highway 277, south of San Angelo, on the Allison Ranch. I left my truck running (in the hopes someone would move it if things went badly and I had called in a crewmate to meet me) and jumped out with a torch to begin burning behind the first road-grader widening the intersecting ranch road. We caught that one quickly and kept it under 2000 acres.

"The last four fires we responded to, we were the only true volunteers – we dropped everything to respond without collecting firefighting funds. I would simply rather respond in your neighborhood than wait and fight it in mine. One of the men from my crew has gone on to get his own commercial prescribed burn manager license as well."

The experience has prompted the prescribed burn specialist to get involved with state and federal agencies to improve communications and shorten response time. "One of our first response problems is that the local fire department or volunteer fire department charges out to a location, but hesitates to react, calling in reinforcements and generally monitoring the advance of the wildfire until a Texas Forest Service commander arrives. TFS would like to arrive on scene to a response in action, but when they arrive, the first responder doesn't have a head count on available firefighters at location, no maps of the location, and usually no intel on fire behavior or scope, and no applied effort other than where structures are involved. So if the first responders wait three hours for a TFS commander to show, it may take another hour of administrative work for the TFS to understand the situation. In extreme conditions, this could mean the difference from a 300 acre fire to a 3,000 acre fire or bigger.

"What makes a local response so effective is that I can respond in my region faster than the Texas Forest Service can deploy a federal hotshot team to build the same defense. I'm working with the Texas Department of Agriculture burn board to get MCE credit for burn licensees responding to TFS wildfires, in an effort to foster more local response. Just as I've told that board, when we can re-direct a retardant-loaded airplane from dropping its load on the head of the dragon to a nearby road which we can use to burn against, than we have begun to work with fire instead of just fighting it."

Which drives the point home: fire is not just something to be feared by land stewards; it is the tool to fight bigger fires and improve the land and environment to the benefit of not just the landowner, but for all.

