ISSUE 1 | 2025

UNITING THE GLOBAL WILDLAND FIRE COMMUNITY

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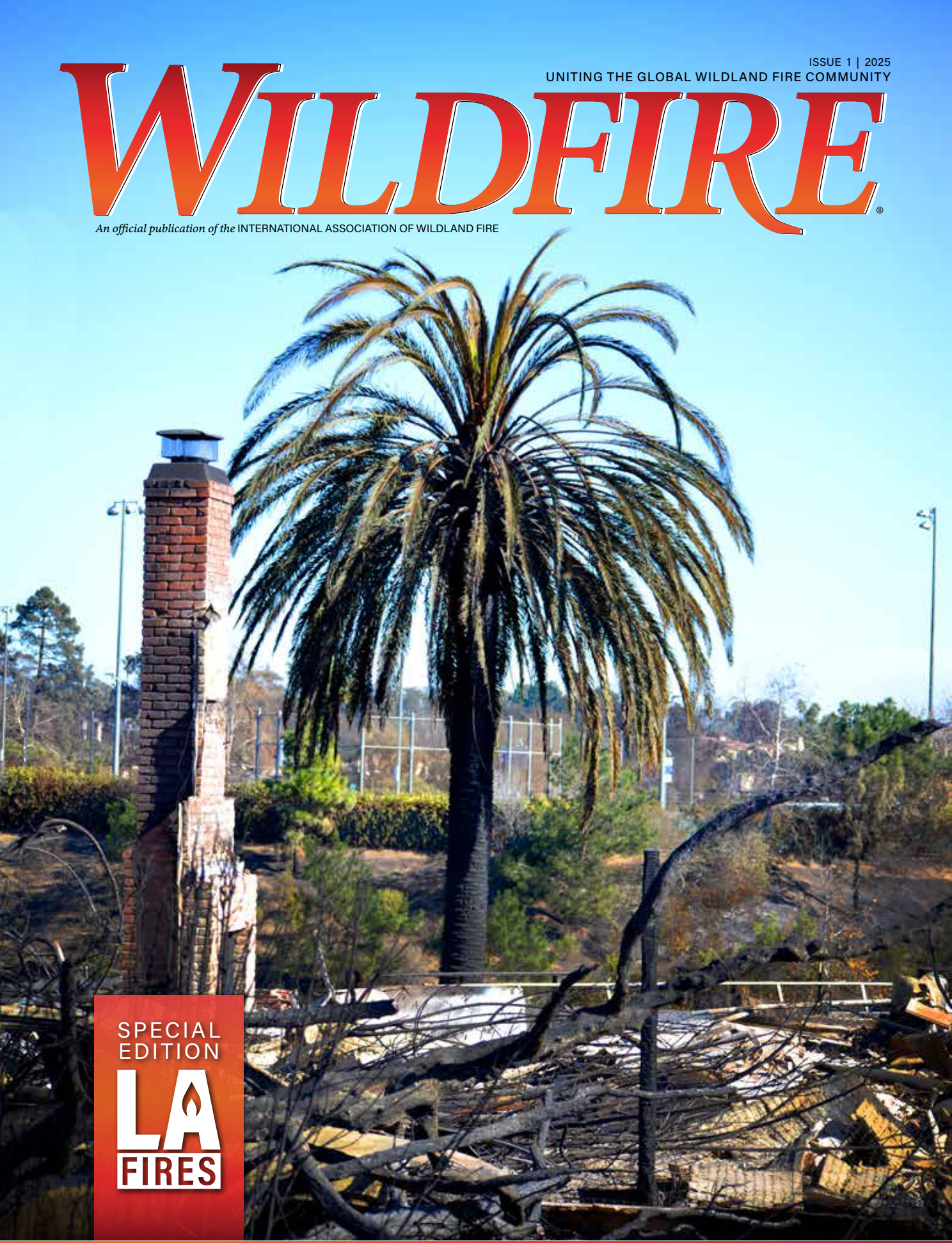

SPECIAL EDITION

LA FIRES

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OPINION

LA FIRES

NEWS AND FEATURES

ON THE COVER: A single palm tree stands as a sentinel to the community of Palisades, emblematic of unusual life surrounding profound devastation. See stories starting on page 8. Photo by Kelly Martin.

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FOCUS ON LOS ANGELES

BY LAURA KING

The fires in Los Angeles in January – the Palisades fire and the Eaton fire – were different; all over social media and traditional news feeds, people said the fires were unusual. The Santa Ana winds. The intensity. The destruction.

IAWF past president Kelly Martin (page 8) desperately wanted to go to LA. Watching the fires on TV and social media, Martin was flummoxed.

"I needed to see this urban conflagration for myself," Martin writes in her narrative about her experience in LA with her colleagues from the tiny White Bird Volunteer Fire Department in Idaho.

"The fires were so outside my 40 years of wildland fire experience there was no rational part of my brain to reconcile what I was witnessing."

Martin was among hundreds of responders who went to LA for myriad purposes: to extinguish hot spots, complete overhaul, conduct reconnaissance for other agencies, focus on prevention, and to observe.

Over 14 days the White Bird crew worked to ensure no reignition of the Palisades fire.

"I saw first-hand concrete bank buildings that were but shells," Martin says. "How does a concrete building in the middle of town on flat terrain just disappear?

Michael Hill was equally overwhelmed during his time in LA on a military company assignment. Hill, formerly with the US Forest Service and now based in Australia, describes the barricades to keep people from looting homes, the contracted crews cutting vegetation around multi-million-dollar properties to prevent embers from starting fires, and offers some perspective about why the fires caused so much devastation (page 14).

"In Southern California when I was working there, urban interface zones and Santa Ana winds were always factors," says Hill, an associate editor for *Wildfire*. "They were dangerous, so we learned about them and used that knowledge to prepare for all that could happen. Could the LA Emergency Response Management apparatus have been better prepared?"

Lindon Pronto's view of the LA fires from Europe (page 18) looks at strategies and tactics and considers structural practices compared to wildland protocols.

Pronto calls the intersection of wildland and urban fires an operational gray zone.

"These fires are the jurisdiction of urban fire departments, but often they rely on wildland firefighters to get the job done," says Pronto, also an associate editor for *Wildfire*. "And wildland firefighters are increasingly being called to fight wildfires in urban environments."

Ron Steffens, former *Wildfire* editor and longtime wildland firefighter, questions the politics of wildland fire (page 28) and the remarkable fact that despite California recognizing the need for a year-round firefighting force, decisions about federal hiring have been in limbo.

"Though it's clear there will be smoke and fires, the proverbial smoke-filled rooms of politics have needlessly and dangerously mucked up our professional staffing," Steffens says. "We're asking, who will work our fire-and-fuel challenges?"

Former IAWF board member Michele Steinberg provides enlightening insight about the LA fires in an interview with *NFPA Journal* writer Jesse Roman (page 20). Steinberg, the National Fire Protection Association's director of wildfire, cites perfect conditions – wind, lack of rain – and the absence of up-to-date building practices.

"The reason we're seeing such incredible damage is because we've built homes close together with relatively little attention paid to how they're going to resist exterior exposure to flames and embers," Steinberg says.

As Roman explains, California Gov. Gavin Newsom signed an executive order waiving certain requirements for rebuilding, including provisions of the state's building code.

"The damage is driven by the fact that we have so much development in these wildfire-prone areas, with so many people and structures at risk," Steinberg says, "We need to stop looking at wildfire as a fluke or a once-in-a- generation issue and understand that this is a natural phenomenon that we'll continue to see."

IAWF board member Amber Lynn Scott studied the LA fires through a research lens, considering firefighter resilience. Scott says talking about firefighter health, safety and resilience should lead to change.

"By prioritizing regular discussions of member resiliency as part of the overall effort to manage wildfire risk, the scholars, practitioners, and leaders who comprise the greater wildfire community can collectively identify and support opportunities to build more resilient organizations despite the increasing number of traumatic wildfire events unfolding."

Let's hope so.

Managing editor Laura King is an experienced international journalist who has spent more than 15 years writing and editing fire publications. She is the Canadian director for the National Fire Protection Association (NFPA), works closely with FireSmart™ Canada to help residents build resilience to wildland fire, and has participated in the development of the Canadian wildland fire prevention and mitigation strategy.

THE IMPORTANCE OF THE IAWF

BY TREVOR HOWARD

It is an immense honour and privilege to become the president of the International Association of Wildland Fire, an organisation I am deeply passionate about. I became a member so I could meet and network with interesting people around the globe and learn from their cultures, viewpoints and experiences. I was also attracted by the non-aligned, multi-disciplinary nature of the association. Now I have an opportunity to serve and contribute to the international fire community that has provided so much to me over many years.

I want to start my term by acknowledging and thanking Kelly Martin, the IAWF president during 2024 and a board member for six years, for her leadership and the example she set. Building on an already long and successful career, Kelly continues to contribute so much to fire management, from representing Idaho as a volunteer firefighter during the January 2025 wildfires in California and sharing her expertise in prescribed fire through international training exchange programs for women, to being a strong advocate for diversity, wellbeing and mental health.

Each year, the IAWF has changes to its board of directors, and I thank Nuria Prat-Guitart from Spain, Sara McAllister from the United States, and Xinyan Huang from China who have also just finished their terms. We are excited to have Kerryn Little from the United Kingdom, and Megan Dolman and Alistair Smith from the United States join us in 2025. Ciaran Nugent from Ireland has taken on the vice-president role, while Tamara Wall from the United States is the new treasurer. Not only do the board members bring so much knowledge and experience to the table, but the many committees and the membership at large are a worldwide powerhouse of expertise across all wildland fire management disciplines.

My own perspective on fire management challenges and future directions has been shaped by many things. While much of my career has been quite conventional, working in fire operations and senior roles within land management agencies and emergency services, I've also had a lifelong interest in Indigenous cultures including studies in anthropology. Here in Australia,

like elsewhere around the world, the recognition of Indigenous rights and interests in land, and the wisdom that comes from thousands of years of Indigenous land and fire stewardship, offer new solutions to wicked problems. The intergenerational transfer of knowledge is equally important. Australian Steve Sutton's disaster research on Simeulue Island in Indonesia shows the power of music and song for informing young people about past events such as tsunamis as well as preparing them for future natural hazards. In an age of social media, and instant information in small bytes, we risk losing our traditional communication, connection to country and community resilience.

Like all of us who are involved in wildland fire management, we need to develop and deepen our understanding of risk and what we can do about. My own journey started as a climber and continued through forestry, prescribed fire, aviation and wildfire suppression but I'm especially grateful to others for much of my learning. Mentored by the late Roger Estall, a former head of fire services in New Zealand and an author of numerous international standards, I learned about the importance of communicating and consulting about risk, having clear objectives, appreciating the context, challenging assumptions and making good decisions. Other approaches and tools have proven to be useful. The PESTLE acronym, often used in risk assessment and strategic planning, prompts us to consider the political, economic, social, technical, legal and environmental dimensions of problems and potential solutions. We need such frameworks that allow us to communicate across nations and cultures, understand differences, and find common ground.

That is why the IAWF is so important. As a non-profit entity, the IAWF was built on the belief that an understanding of fire is vital for natural and cultural resource management, for firefighter safety and community preparedness and protection, and for harmonious interaction between people and their environment. The IAWF has been formed to:

- create networks across sectors, fields and disciplines to connect the global wildland fire community and to facilitate sharing of latest knowledge and lessons learned;
- create a sense of belonging and inclusiveness among our diverse and geographically dispersed wildland fire community through membership and multiple platforms; and
- provide regional and international leadership and impact through partnerships that leverage the considerable expertise throughout IAWF's networks and membership.

The IAWF has worldwide membership and influence, but remains underrepresented in Europe, Asia, Africa and South America despite the significant and increasing fire management challenges on those continents. My priorities as president are to:

1. build on existing networks and partnerships but forge new global connections that promote the IAWF, its member expertise, and opportunities for leadership, learning and influence;
2. grow the membership, both individual and corporate, and ensure that the value proposition remains grounded in member feedback and focussed on diversity and inclusivity; and
3. ensure that the association's finances are sound and sustainable, allowing us to continue to lead, grow and provide member benefits.

Trevor Howard is the national manager, prescribed burning strategy, with the Australasian Fire and Emergency Service Authorities Council (AFAC). Based at the Bushfire Centre of Excellence in Western Australia, Howard leads national capability development for prescribed burning and supports rural fire services, land management agencies and non-government organisations with continual improvement.

LA FIRES

PERSPECTIVE

BY KELLY MARTIN

This is not a reflection about who or what to blame. But blame was the tagline I was watching on TV within the first 24 hours of the Palisades and Eaton fires that wiped out swathes of communities in southern California. This is my account of what I saw and my contemplation about what comes next.

I needed to see this urban conflagration for myself. The fires were so outside my 40 years of wildland fire experience there was no rational part of my brain to reconcile what I was witnessing. I went to bed Jan. 7 and woke up the next day to a request from California to neighboring states for help. The call for fire engines went out far and wide as an Emergency Management Assistantance Compact (EMAC) request – a national disaster-relief compact that allows states to share resources during emergencies or disasters. Could it be possible that our little White Bird Fire Department (population 100) could be part of this effort? I was repeating over and over, we have to go, we have to go, we have to go. The morning of Jan. 9, I found myself loading my summertime fire gear in the dead of a snowy winter in Idaho and heading south for our two-day trip to Los Angeles.

After I retired in 2019 from a 35-year career working for the US Forest Service and National Park Service I found myself volunteering for many opportunities to give back to my community and the larger wildland fire community nationally and internationally. These opportunities allow me to see things differently. I'm no longer a fire chief or a member of an incident management team; I'm no longer a supervisor. In LA, I was happy to be serving as a firefighter, as I had done in 1984 when I was humble, curious and excited for the journey ahead. We left the frigid winter of central Idaho and after two days of traveling, slowly emerged into the envelope of the warm ocean breeze along the Pacific Coast Highway. I see now why so many people are attracted to the ocean and the temperate climate. Many millions of people choose to live in LA, even with the deadly Santa Ana winds always lurking in the background. No amount of human intervention will tame the Santa Anas.

This LA assignment brought my career full circle. I remember the epiphany I had at the Grand Canyon when I was flown by helicopter to the North Rim for a wildfire response. Sleeping in the rocks, dead tired after a seven-day wilderness fire experience, I knew at that moment every day from then on would be dedicated to working as a wildland firefighter. My younger self could never have imagined my older self responding on an engine to a wildfire in LA, suppressing flare ups behind multi-million-dollar homes, helping people recover something – anything – that was recognizable of their past lives. The extreme contrast of my first fires in the wilderness of Grand Canyon National Park and the urban conflagration of LA could not be greater. I continue to remind myself that I had, and am

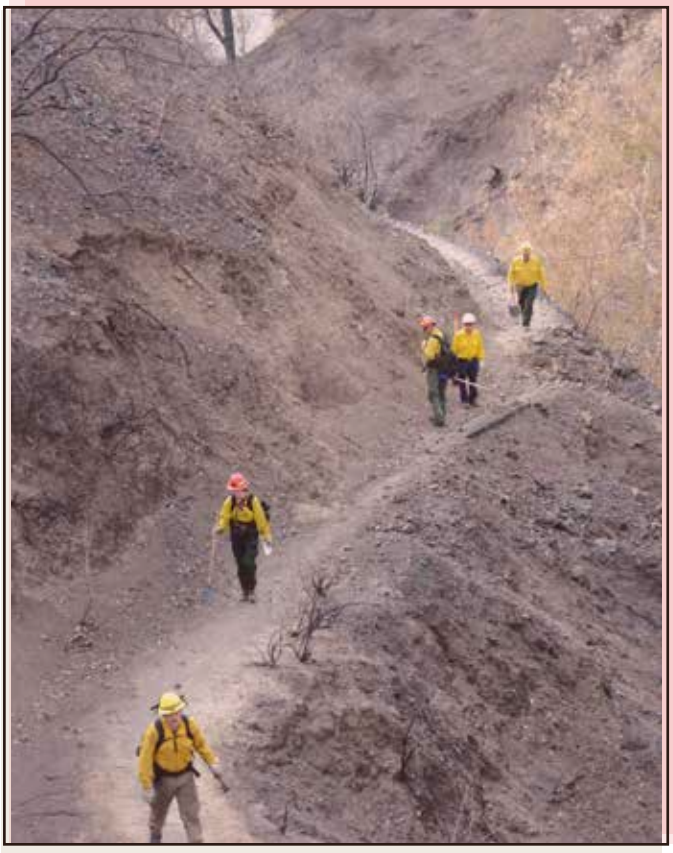
still having, an amazing career serving the American public, and I'm extremely proud to have been part of a national response.

During the long trip from deep-winter Idaho to summer-like conditions in Malibu, I spent a lot of time being mindful about what I was getting into: tens of thousands of homes gone, lives lost, and billions of dollars of loss that surely would take years of recovery. Our travel route took us through the heart of LA in our oversized engine in gripping traffic. As we were given the wave to pass through the roadblock on the Pacific Coast Highway, it was as if everything became quiet and the anxiety of driving in heavy traffic was gone. It was game time. There was no one on this popular highway, just our five engines in perfect spacing. Our taskforce rumbled toward the first visual of the devastation. When people tell you the scene was unlike anything anyone has ever experienced, it's true. My first impression was how could so many buildings for miles along the Pacific Coast Highway be gone, nothing but rubble – ash, concrete and metal – large, commercial buildings just gone. How do so many buildings built literally on the ocean coast go up in flames? Truly unbelievable.

Our fire engine was assigned a very specific area to suppress hotspots and open flames. We got to know our area quite well and got to know where small spot fires could threaten containment. The physical geography of this area was my first revelation about what we were witnessing. The area was densely populated. Homes lined both sides of steep canyons; some homes were built further up the slope with incredible views of the ocean. I soon discovered why

"There was no rational part of my brain to reconcile what I was witnessing."

Narrow, one-way roads with dense vegetation are common throughout the Palisades. All photos Kelly Martin.



these neighborhoods were very desirable places to live.

I spent the better part of my fire career working and living in Yosemite National Park and on incident management teams, but Los Angeles County and the City of Los Angeles were new ground for me. I felt like everything was novel again. Our first assignment was along the eastern boundary of the Palisades fire. Our mission was to keep the fire from jumping the canyon and igniting highly volatile vegetation that could reignite the eastern spread and threaten more homes and lives. I felt grateful the most severe Santa Ana winds had passed, but we all felt the heavy weight of protecting multi-million-dollar homes from any further damage.

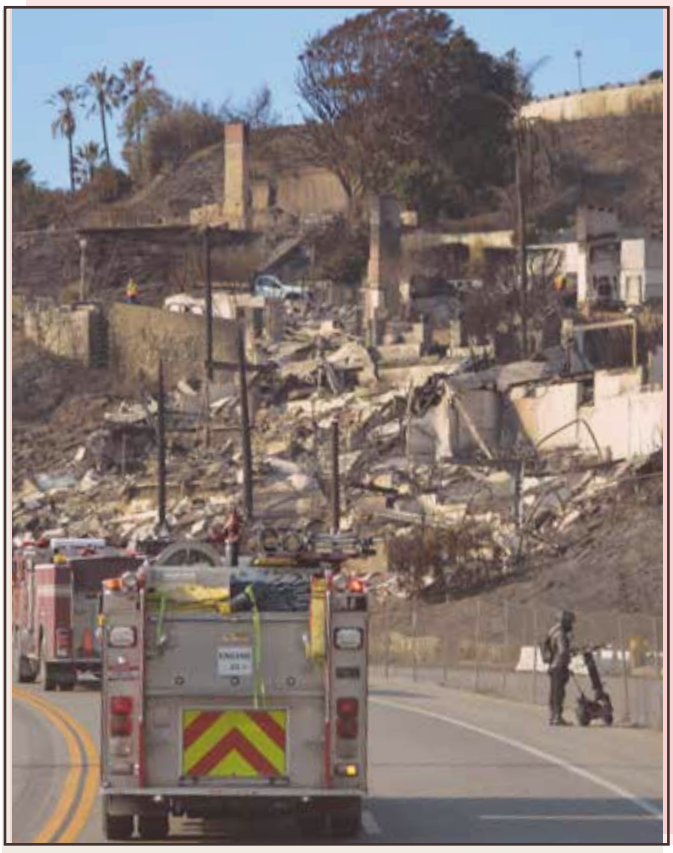
The next 14 days we covered a lot of ground throughout the Pacific Palisades area and just to the east of the fire's edge to ensure no reignition. I was struck most by the sheer

Idaho Taskforce #4 patrolling the burned area near homes for hotspots and taking suppression action to ensure no reignition.

A plethora of food-trucks that donated meals to firefighters were staged at strategic locations throughout the Palisades fire area and provided much needed comfort and nutrition.

devastation, block after block of leveled buildings, but occasionally I would see a house still standing and I could not help but study these houses up close. Had firefighters been there? What was the construction of the house? How old was the house? How and why did particular homes survive? The heroic efforts of individual engine companies is likely one of the untold stories that will come out over time. For CAL-FIRE, LA City and LA County and surrounding fire departments that were called into to assist, I can't help but try to put myself on their engines with the firefighters who did their very best – as they had been trained to do – to save life and property, watching home after home, and business after business, fall.

I saw first-hand concrete bank buildings that were but shells. How does a concrete building in the middle of town on flat terrain just disappear? My curiosity began to shift to try to understand



The first glimpse of what was to come; major buildings on both sides of the Pacific Coast Highway were destroyed.

The wildfires began Jan. 7; many homes and communities in the fire area still had Christmas decorations around their properties.

the many factors that contributed to this devastation. Weeks later, at home, I was still processing what I saw and the people we met and helped.

My experiences in LA will forever be part of my fire career: Homes reduced to ashes with Christmas decorations on their hedges and fences; miles and miles of ash, concrete rubble and twisted metal; devastated homes and buildings along the pacific coast washing into the ocean; remaining homes that did not burn that were saved by owners or firefighters and home-hardening construction. Amid such destruction and devastation of life and property I looked for color among the chaos. I found small comfort in emerging new flowers, just two weeks after Jan. 7.

LA experienced a great boom after the Second World War. Houses and small lots were the first indication to me that the building boom after 1945 likely did not consider the possibility that whole communities could be destroyed by fire. Communities continued to expand into the wild, untamed fire territory. Building continued and the population surged from 3.5 million to more than 18 million by the 21st century. Combine the population growth with few if any builders or homeowners who understood home hardening or Firewise™ concepts, and the lack of building codes. Community planning 70 years ago was very different than it is today, and the number of communities still in the path of future wildfires is staggering. Devastating loss of life and property will happen again. Closely packed housing units, vegetation hedges 15 to 20 feet tall between homes, home development in steep canyons, and narrow roads – its clear how this catastrophic urban conflagration developed.

Kelly Martin became an IAWF board member in 2019 and was president in 2024. Martin retired as chief of fire and aviation, Yosemite National Park, National Park Service, Pacific West Region, in 2019. She began her federal career as a GS-3 with the Apostle Island National Lakeshore in 1984 while attending college and worked her way up through the ranks during her 34-year career. Martin also served on the Presidential Wildland Fire Mitigation and Management Commission, helping to develop 148 unanimous consensus recommendations. She is the past chair of two National Wildfire Coordinating Group programs: Fire Environment Committee and the National Fire Management Leadership (M-582) course. Martin is a mentor and coach for the national and international Women in Fire Training Exchange (WTREX) program. She now serves as a volunteer firefighter and trainer for White Bird Fire Department in Idaho and started a fire consulting business in 2024.

The White Bird Fire Department was one of hundreds called to the LA area.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LA FIRES

RECONNAISSANCE

BY MICHAEL SCOTT HILL

In mid-January I was sent on a military company assignment to recon the Los Angeles fires and use the experience to teach our leadership staff about wildfire. I was in Australia and was flown to California. As I packed, I turned on the TV and saw footage – big flames, heroes, victims and their stories, political blame slinging, shouts of incompetence, and lots of videos of fire aviation operations.

I arrived in Southern California and linked up with my small team of corporate leaders. I was their wildfire expert and the next day, after the red flag weather forecasts for Santa Ana winds lifted, we headed down the coast to visit the tragic wake of the Pacific Palisades fire.

Having spent a career around the US Forest Service wildfire operations, the footprint of wildfire response was familiar: inbound structural city firefighting engines in short convoys; task forces; tents; trucks; trailers; staged fire equipment; and crews waiting at an oceanside incident command post. There were no federal fire response rigs, just CAL FIRE local fire response vehicles, and many law enforcement patrolling to deter arsonists and looters.

All this was our backdrop to that famous Pacific Coast Highway between the coastline and where the rolling hills – with their brush and dried grass – climb upward among expensive homes.

We continued toward Malibu, halted by a California National Guard and LA Police Department roadblock just before the line of burned homes. We turned around at their orders and pulled into a grocery store parking lot for lunch. We sat with locals eating near a tacked-up fire operations map and two friendly CAL FIRE public information officers.

The PIOs informed us that the massive fresh fire scar across the mountainside behind the store was not the Palisades fire but the recent Franklin fire; its blackened slopes had actually saved the homes of this community along the northern perimeter of wind-driven Palisades fire. We were told that the electricity and gas had been turned off since the Palisades fire, and it was tough on locals and their businesses, even if the flames hadn't reached them.

It was clear that everyone was making the best of their situations. Electric and gas repair crews were in a huddle going over plans. Recovery was beginning just a few days after the Palisades fire had made history, destroying so many homes.

On the long ride to our hotel, we drove by the Point Mugu Naval Air Station and parked on its ramp. I counted, ready to be crewed, five military C-130 cargo planes converted temporarily into fire bombers with the addition of portable modular aerial firefighting systems (MAFFS) in their open tails and large numbers applied to their camouflage-painted fuselages.

AFTER THE WINDS

The following day, after the Santa Ana winds subsided and dangerous wildfire conditions temporarily calmed, we drove along the busy Highway 101 through layers of brushy hills into the sprawl of LA's homes and urban pockets, making our way to the Eaton fire.

Miles of piles of yard vegetation to be chipped had been cut by contracted crews awaited mobile chippers. The hazard-reduction operation continued into areas untouched by fire, to reduce future fuels. All photos by Michael Scott Hill.

The Eaton fire had been LA's second most destructive wildfire, consuming thousands more homes and structures. This fire, like the Palisades, was still burning in remote areas.

We followed Highway 101 to the suburb of Altadena, through more layers of brushy and grass covered hills. I could see the strip of red fire-bomber retardant across some rugged hills that grew into mountains, and beyond that perimeter, a massive dark blur of burned, brushy slopes leading upward from a crowded residential community packed with landscaping vegetation.

We passed a restaurant parking lot converted into a distribution point with pallets of water and hand-out areas for clothing and other supplies. Another restaurant was transformed into a food distribution center with another line of newly homeless residents waiting to collect their meals.

We saw the massive steel grid structure of a powerline leading up the freshly burned mountainside, carrying high its load of electrical lines up and over the mountain. This powerline, we had heard, was the origin of the sparks that ignited the dried grass and brush that were fanned to life by Santa Ana winds and drove the inferno into the community's garden-like landscaping, where homes became fuel.

Across the road, there had been a large spread of new apartments – each built to look the same – now missing several layers, where fire from the powerline had blown across the road into dried brush, consumed the vegetation, and then the buildings.

We turned to the left; the residential community's edge angles right to make way for a sea of homes with yards crowded with shady foliage. To our right, crossroads led into the large housing complex; parked at each crossroads was either a National Guard military vehicle with an armed soldier standing next to it, or an LA PD officer and a squad car – and sometimes both – with a ROAD CLOSED sign posted between.

As we continued past more roadblocks, I focused on looking past them down the streets, and the destruction became clear. I have seen many burned homes, but this wildfire's damage was different. There were patterns to the destruction that showed how the Santa Ana winds soared the flames into the homes then used the buildings and their beautiful gardens as fuel to roll onward.

Many homes and yards were untouched by flames, yet here and there were single homes and yards consumed totally by fire, victims of ember attack.

The tour through the destruction of Altadena brought

home to me lessons in hazard reduction management. I surveyed Eaton's deadly wake and the haphazard pattern of wildfire home destruction; many homes behind post-fire yellow tape or roadblocks were untouched by fire, but here and there were burned homes.

The barricade line and roadblocks appeared to have been laid out carefully to capture whole areas where there were scores of undamaged homes. This was done, the PIOs had said, to prevent looting.

The Eaton fire was not done yet; high above these homes and their wild forested yards, on the mountain and over its peaks, I could see the occasional passing helicopters and air tankers swooping in for bombing missions.

All along both sides of the road were piles of cut yard vegetation awaiting mobile chippers. This hazard-reduction operation was massive; the roadside piles continued as we detoured away from the destruction into areas of homes untouched by fire, where life went on as normal. We saw contract hazard-reduction crews pruning wild landscaping and carrying away yard debris to create miles more roadside piles, to reduce future fire danger.

Poignant words for responders and residents.

PERSPECTIVE FROM YEARS OF SOCAL BURNING

Days later, flying back to Australia, I processed all I had experienced.

I've worked on countless wildfires with the US Forest Service, yet these LA fires were unique. No matter how each began, did the fires have to be as bad as they turned out to be?

Thirty-two years ago, I had been a wildland firefighter stationed in Southern California and earned my place on the Los Padres Hotshots. In 1993 we successfully fought several wildfires sometimes driven by Santa Ana winds.

I learned that the fire regime in California is ancient in its cyclic patterns. I was taught about weather patterns and fire fuels; we specialized in working the big fires along the urban fringe. Southern California is one of the world's most wildfire prone areas, and its wildfire flames have the potential to mix with its people – and often do.

In Southern California many people craft comfortable lives, using technology to distance themselves from the realities of the natural world: air conditioners and beautiful shady yards insulate the people from the natural hot, often harsh, landscape.

What has changed in the Southern California wildfires since I was a young hotshot?

The tactics employed in fighting wildfires have shifted – at least in California – to promote situations for large fire growth using indirect attack strategies. Weather patterns worldwide have shifted, causing fire seasons to be altered in locations; and of course, there are financial realities that make wildland fire fighting no longer as attractive a profession as it once was.

There are factors in Southern California that won't

change. The hot sun will shine. The grass and brush will grow, and this vegetation will cure and die in its normal life cycles. The Santa Ana winds will always blow in strong from Nevada and race over the hills. Wildfires will always start naturally, by accident, or arson.

Which of these factors can be modified by humans? Fuels that fires consume can be managed to reduce accumulation (loading) that builds up over time. Wildfires need fuel to take hold and grow, just as they need ignition sources. The wildfire fuels typical of Southern California, such as dried grass, brush and timber, all have predictable cyclic points in their life cycles when they are ready, able to carry, and to be consumed by fire.

Recently, I discussed Australia's wildfire history and fire fuels management with retired Australian CSIRO scientist Phil Cheney. I have spent 16 years as an Australian wildfire firefighter; as was the case in California, I learned some of the unbending realities of many of Australia's wildfire regimes and their related fuel cycles.

Political smoke and agendas obscured the realities of the 2019-2020 Australian wildfires. During a time when productive wildfire management progress could have been made in New South Wales, governmental political expediency favored instead responding to political agendas in a post-fire smoke screen.

To paraphrase Cheney, in the wake of deadly wildfires, it's easier for government bodies to find politically expedient, temporary solutions to wildfire problems, as their own political career life cycles are short, and the cycles of fuel build up between bad fires can be lengthy. Given the costs necessary to properly correct the situations, Cheney said, its usually easier to kick any real problems down the road.

I have witnessed many times that it's often better for political survival to bury what really happened and move on. I believe this is what has occurred in LA.

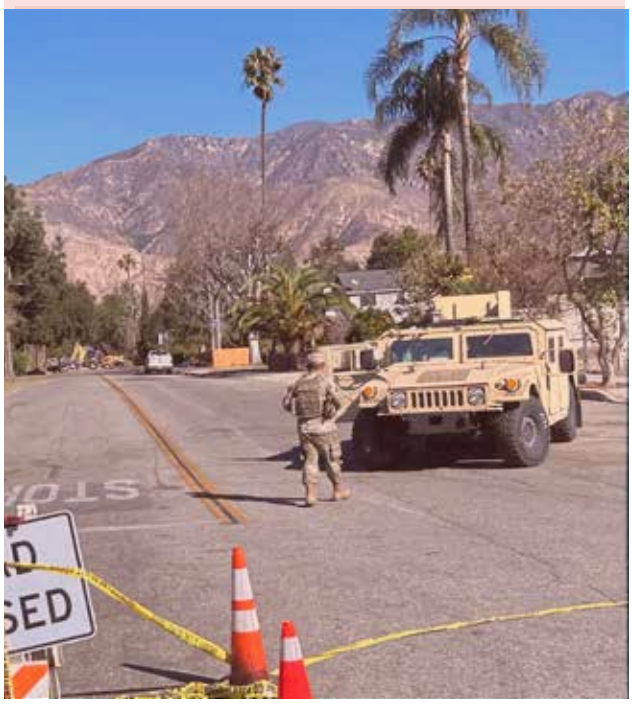
FIRE ZONES AND WAR ZONES

Besides fire fighting, I run aviation operations in war zones. When I visited LA, I saw something different.

In Afghanistan, we repeatedly war-gamed any situation in which we could potentially find ourselves, until we had numerous contingencies ready to act upon.

In Southern California when I was working there, urban interface zones and Santa Ana winds were always factors; they were dangerous, so we learned about them and used that knowledge to prepare for all that could happen. Could the LA Emergency Response Management apparatus have been better prepared? LA has seen urban development expand its boundaries more than its density; the interface is so much larger than it was when fire careers began. And the 30-year fire return interval in chaparral is longer than many careers. How do agencies prepare?

There are many valuable lessons in disaster management, and pre-disaster preparedness that can be pulled from the LA fires, if we take the time and effort to look carefully enough beneath the layers of smoke that might be blocking our vision.



In Malibu and Altadena, roadblocks with National Guard military vehicles, armed soldiers and / or LAPD officers kept looter out of neighborhoods where utilities had been shut off and residents had evacuated.

LA FIRES

TACTICS

BY LINDON PRONTO

We have entered an operational gray zone: wildfires burning in cities. These fires are the jurisdiction of urban fire departments, but often they rely on wildland firefighters to get the job done, and wildland firefighters are increasingly being called to fight wildfires in urban environments.

During the breaking news frenzy around large wildland fires, I rarely say what I really want to say – it's a game of responding to sensational and reactionary questions, just like how we approach fire itself. So, here's what I'll add to the discussion about the LA fires.

There will be a lot to learn. And some officials and organizations are going to need to take some responsibility. And certainly, residents in fire-prone landscapes need to contemplate their own responsibilities. But these are the two fundamental questions I see that we need to address:

1. What will be collectively required of us to prevent such disasters in the future?

2. How will we respond to similar disasters when they occur?

Since the January fires, news stories, op-eds and social media have been swirling with lots of great propositions to these questions: more prescribed fire, fire-hardened construction (hempcrete!) and landscaping, better urban planning, building codes, budget priorities, public utility SOPs, fire-tech, etc. I think the answers to how to address question 1 are relatively straightforward – experts have been sounding the alarm and offering solutions on these issues for decades. Answering question 2 is more challenging.

Looking at the long list of things to address to prevent such a disaster from happening again, it's obvious the changes, motivation, behavioral shifts, policy response and funding needed mean we will likely have many more devastated communities long before these changes come to fruition. This brings us to question 2 – the burden on the conscience of the collective response community. At the end of the day, we all still expect firefighters to respond, as they have always done.

Fire fighting is siloed: there are many types of firefighters from municipal and state to industrial, airport, and maritime. To oversimplify in the California context, there are wildland firefighters and urban / structure firefighters, and some who do a bit of both, especially in California, known for its wildland-urban interface.

CAL FIRE is an example of an agency that evolved to do both. Los Angeles County Fire is another example. But fundamentally, wildland firefighters are trained and equipped differently and operate tactically and strategically different than urban fire departments.

I'm not knocking one group of firefighters; I'm just saying we don't expect a smokejumper to run into a burning building. But we do expect urban fire departments to manage the most complex and extreme wildfires, ordering outside resources as needed.

But telling an urban firefighter not to extinguish a burning building goes against every instinct. This was apparent in the LA fires – urban firefighters pumping massive quantities of water through large-diameter fire hoses on fully involved structures. In other words,

valiantly using the equipment they have, to do exactly what they were trained to do. Urban firefighters are a stationary firefighting force whose objective is to tap into the nearest fire hydrant; the fire truck serves as pumping platform and the firefighters are committed to this effort until the structure is fully extinguished. This is obviously an untenable approach if a sea of structures is on fire during a wind event. Houses and cars, businesses and schools – all on fire. Instead of trees and bushes, it's a jungle of petroleum products and biomass – a devastatingly overwhelming situation.

We can throw up our arms and say no firefighter can stop a fire in 100 mph winds, and I agree. But stories have also emerged about people with little or no training who used garden hoses, a portable pump and a lot of diligence to save their homes and their neighbours' homes in the same extreme conditions. These courageous residents were under no illusion of extinguishing a fully involved structure fire but even using very little water (comparatively) they correctly identified the need to remove or wet the fuel to make it unavailable to burn and extinguish every tiny flame before it became the next inferno. In other words, they used wildland firefighting tactics in an urban environment.

Wildland firefighters are trained not to fight a house on fire but to stop it from spreading to the surrounding area. Wildland firefighters operate very differently; their initial objective is not to extinguish a fire but to rob it of available fuel to eventually contain its spread. This is why wildland firefighters are very mobile, and move with the progression of the fire, often doing so without relying on water, or at least very little water. In a mildly comparable scenario some years ago, I'll never forget seeing more than a dozen Type 1 urban fire trucks retreating. It was a weird and confusing moment: an urban conflagration and all the red trucks were retreating and the green trucks and hotshot crews going in. We lost hundreds of homes and two people, but 80 per cent of the neighborhoods survived. Looking back, it wasn't bravery or determination that made the difference (some of those firefighters lost their own homes that night), but how we framed the problem and responded tactically. An overwhelming scenario for our urban counterparts was still a wildfire to us. Our equipment, strategy and tactics proved highly effective, even though it was houses instead of trees on fire. Of course, it was a luxury to have hydrants, but ultimately, we saved more houses by moving quickly, working with chainsaws, handtools, garden hoses, and the 500 gallons we had in our tanks.

Back to LA. I'm not saying been there done that. Or that firefighters could have done more or better. Those firefighters faced a nightmare scenario and gave it their 1000 per cent; they have my unconditional respect.

Looking ahead, I believe the response community does need to think outside the box when it comes to this new operational gray zone. Firefighters will be called into these scenarios in the future, and to answer that second question, adaptations in our strategies, tactics, and use of resources need to be addressed. Maybe we can learn a thing or two from the wildland fire community – after all, as the Washington Post reported, LA has long been over-dependent on wildland firefighting agencies like the U.S. Forest Service to handle fire in the city and county's jurisdiction.

This opinion piece first appeared on LinkedIn in January and has been updated.

Lindon Pronto (M.Sc. environmental governance) has more than 20 years of experience and expertise in wildfire management with employment, research, deployments, and remote support to / in more than 30 countries in the Americas, Europe, Asia, Africa, and the Middle East. Pronto has years of operational experience as a federal wildland firefighter in California. In addition to working in many European projects, Pronto has been commissioned by government agencies, NGOs, international organizations, and consulting firms, serves on national and international expert panels, and has provided thematic expertise to the European Commission, European Parliament, government agencies, and the private sector. As a subject matter expert with extensive communication experience, Pronto has contributed to more than 200 international print, radio and television publications and broadcasts and is an associate editor with *Wildfire* magazine.

LA FIRES

CODES

BY JESSE ROMAN

As Los Angeles County tries to pick up the pieces after one of the most destructive wildfire events in U.S. history, local leaders are confronted with urgent challenges and immense decisions, chief among them, rebuilding areas that were destroyed. NFPA's director of wildfire, Michele Steinberg, a former IAWF board member, provides perspective on the wildfires, the tortured response, and what needs to happen as the region undertakes the largest reconstruction project in its history.

By now, we all know about the hell on earth that Southern California endured in January when two enormous wildfires, the Palisades fire and the Eaton fire, reduced large swaths of Los Angeles County to rubble and ash. The fires, driven by hurricane-like 100 mph wind gusts, moved so voraciously over the parched landscape that, by the fourth day, fire had consumed some 40,000 acres – an area larger than the city limits of San Francisco.

As of Jan. 15, at least 12,000 structures had been destroyed and 25 people had died, but officials warned that both numbers would likely rise. As of Jan. 22, neither the Palisades fire nor the Eaton fire had been fully contained.

The unrelenting winds made fighting the fires from the air impossible for days. Efforts to fight them on the ground were hampered by the famously hilly Southern California topography and by major water supply issues. Fire crews complained repeatedly about hydrants having either low water pressure or no water at all, which stalled their efforts as the fires grew.

Outrage and finger pointing over who was to blame for the catastrophe began within days of the fires igniting. Angry residents, shocked at the magnitude of the destruction, lashed out at firefighters and politicians for not putting the blazes out faster, and the media pursued city and state governments with questions about the lack of water needed to fight the blazes. Behind much of the vitriol is a sense of disbelief. How could a disaster like this happen in the Los Angeles area, one of the wealthiest and most glamorous spots in the world?

"These fires echo what we heard after the Valley fire and the Tubbs fire," said Michele Steinberg, wildfire division director at NFPA, referring to extremely destructive wildfires that leveled communities in Northern California in 2015 and 2017, respectively. "In those fires, I remember veteran firefighters and people in the fire industry saying to me, 'We didn't think this could happen here.' Around Los Angeles, there's been a bit of disbelief over how bad it's been. But these disasters have long setups, and I think it's important for people to understand why we're seeing what we are in terms of loss."

The main issue, Steinberg said, is that communities across the country continue to build vulnerable structures in places where wildfires are inevitable – only to act surprised when wildfires arrive and destroy homes and other structures.
That's why Steinberg and her wildfire peers were dismayed when, just a week into the fire, California's top officials made it clear that they may not fully understand that central issue. In mid-January, with the fires still raging, California Gov. Gavin Newsom signed

an executive order waiving certain requirements for rebuilding, including provisions of the state's building code "that can safely be suspended or streamlined to accelerate rebuilding and make it more affordable." At the same time, Los Angeles Mayor Karen Bass signed an executive order clearing the way "to rebuild all the homes just as they were," even though experts say a big reason the fires were so destructive is because vast portions of the building stock in fire-impacted areas were built without wildfire protections. The new buildings would be just as vulnerable as the ones that burned.

Steinberg, one of the world's foremost experts on community wildfire mitigation strategies, was not shocked by this news. She has seen it many times before, not only in California but in Colorado, Oregon, Tennessee, and other states.

As the LA-area wildfires were still burning, *NFPA Journal* spoke with Steinberg to get her perspective on the unfolding catastrophe, the troubled response, and what local and state officials can learn from the mistakes made by other jurisdictions as they rushed to rebuild after devastating fires.

It's hard to put these kinds of things into historical context in the moment but based on what we know and based on your years of working in wildfires, help us understand the historic significance of the LA wildfires.

Clearly these are among the worst fires by any metric that you could think of. I hate to use that term "the worst" because sadly, the kind of damage that we're seeing is not necessarily unprecedented. It reminds me a bit of what has happened in Northern California over the last several years.

Why was this event so bad?

In this case, we saw a perfect set of conditions that allowed the fires to grow fast and spread fast. Before these fires started, CAL FIRE had put out warnings that, should an ignition happen, we would see very significant wildfire spread – and that's exactly what happened. In addition to the winds, there hadn't been significant rainfall since October, so conditions were ripe for wildfire from Santa Barbara all the way down to San Diego, which is an enormous area.

The reason we're seeing such incredible damage is because we've built homes close together with relatively little attention paid to how they're going to resist exterior exposure to flames and embers. The damage is driven by the fact that we have so much development in these wildfire-prone areas, with so many people and structures at risk. Historically – and not just in California – Americans have built with very little attention paid to wildfire. We need to stop looking at wildfire as a fluke or a once-in-a-generation issue and understand that this is a natural phenomenon that we'll continue to see.

The common perception is that a wildfire moves through urban areas almost like a wave, burning everything in its path. But you've described these losses in urban areas as fire spreading mostly through house-to-house ignition rather than from the wildfire sweeping through. Is that what we've seen in the LA fires?

Absolutely. Rather than a wave, it's more like dominoes, where fire spreads from structure to structure very rapidly. Topography is also a factor; if we have houses up on the hill that are burning, that burning material is coming down and blowing into communities, and then you have the horizontal urban conflagration that happens on the flat land. That's how the Coffey Park neighborhood in Santa Rosa was destroyed in the Tubbs fire.

One way to demonstrate this: in aerial photos of burned areas in Pacific Palisades, you see block after block of burned-out houses, but you also see green trees interspersed among the burned homes. That's because the homes themselves were more vulnerable to ignition than the trees around them, which happens all the time in wildfires. It usually blows people's minds when you point out unburned trees because, like you said, they're visualizing a wave that destroys everything in its path, and that's actually not what's happening.

There has been a lot of public criticism and media attention about the response to this event. Some are claiming that fire crews did not respond fast enough. Others are outraged that municipalities, at times, evidently ran out of water to fight the fires. Do you think these are fair criticisms?

It's nonsense. Just about every story I'm reading keeps circling back to, "Well, how come the firefighters didn't put it out?" and "Why didn't we have water pressure?" First off, you can't safely fly helicopters in 80 mph winds. Again, there was a perfect set of conditions to make these fires really horrible, including having so many houses exposed at the same time. Firefighters mentioned running out of water – I wasn't there on the ground, and I don't want to speak to the specific conditions of what happened or what didn't. But if you think of your own municipal water supply, wherever you live, it's not designed to fight fire on hundreds of structures simultaneously for days at a time. At some point you'll run out of water and that's the end of that.

Trying to blame the damage on not attacking the fire fast enough or strongly enough, or because there weren't enough resources or enough water, is not how we should be thinking about this, because it isn't possible. It's not possible, with the resources we have, to expect that we're going to fight the fire at every structure when we have a fire of this magnitude. What responders have been able to do, remarkably and thankfully, is get most people out of harm's way. And that's been a daunting task. I think our first responders deserve a lot of credit for being able to save lives and reduce injuries. We're very grateful for that.

Are the expectations we have for fire departments too high when it comes to combating these modern wildfires?

So often it seems like the expectations for a municipal fire department are, "Well, we pay taxes, therefore you are going to perform miracles and save us from everything." But people don't understand what a miracle it really is, how dangerous and difficult it is for firefighters when wildfires impact neighborhoods. They don't understand that, in order for firefighters to do their jobs and save you, you've got to do something, too.

One thing that jumped out to me was that, according to CAL FIRE's incident site, the vast majority of structures in the Pasadena / Altadena area where the Eaton fire struck were built before 1939. Those are communities that value older structures. I get that – I live in a community that values its older structures, too. But we know that older structures – if they're not retrofitted, mitigated, and maintained over time to deal with the exterior exposure – are very vulnerable during a wildfire. If any structure was not built to code in the first place to deal with the wildfire risk, they're much more likely to suffer damage and destruction.

We know that Southern California is in a fire environment. So, the residents and municipal governments need to ask the question, "How do we, as a community, protect those resources?" That's about being prepared in a long-term way, not about how you attack a wildfire when it arrives in your community. How do we put preparedness and safety into people's minds so that it's just as much a part of their habits in maintaining a home as everything else they do? Wildfire mitigation is on ongoing, long-term process, and it's not all on the fire department.

As we talk in mid-January, this is still a very fluid situation, but I want to talk a little bit about what happens next during the recovery and rebuilding phase. California's governor and the mayor of Los Angeles have both suggested that they are willing to waive or suspend certain permitting requirements and possibly parts of the state's building code during this massive rebuild. What is your reaction to that?

Applying the building code is absolutely critical during the rebuild. California is one of only two states (the other being Utah) to use a statewide wildland-urban interface code that is consistently enforced. The current code in California, Chapter 7A, also known as the California Wildland / Urban Interface Code, applies to buildings built after 2008 in high-hazard areas. It incorporates all the best science on how you build a home to resist wildfire ignitions from embers and flames. It is really well done. And as California builds new homes in areas with wildfire risk, they apply it, they enforce it, and they inspect to it. My strong, strong recommendation is that local and state officials not waive those requirements in the rebuilding. Apply them and use them.

What do you say to the arguments that applying these codes will only slow down recovery and make rebuilding more expensive for people who just lost their homes?

It is worth pointing out that the wording of the governor's executive order suggests that he does not intend to weaken safety provisions in the building code, which is good. It is not going to do people who

have been victimized by this fire any favors to say, for whatever reason, that we're going to weaken the code to rebuild your home. It makes no sense to put these homes back in a condition that is as bad or worse than they were before in terms of their risk. If they're building something that is known to be substandard, i.e. not meeting code, that is also going to imperil the homeowner's ability to get insurance. Insurance companies are only insuring properties in at-risk areas that are built to the best standards. California has some of the best, and they need to be used.

Why do we see governments, time and again, do away with wildfire protections after they've seen their communities destroyed by wildfires? You'd think the opposite would be true, that they'd see the errors of the past and build back stronger.

One of the big things that we see post-fire is municipalities suddenly saying, "Wow, we've lost so many homes. That's property tax we're not collecting! That is not good for the city or town!" And that's absolutely right – it's not good. But attempting to speed up the rebuilding by waiving all these requirements doesn't work. There's just that knee-jerk reaction. And we've seen that happen now in several fires that I could name where local officials have taken that tack to attempt to speed up the process of getting people back in place, and it just doesn't work.

I also think that there's a real misconception out there that somehow building to safety standards is unattainable or unaffordable. That could not be more incorrect. We've been preaching it for years with our Firewise USA™ program. A home that's built with wildfire resistance is not all built out of concrete or steel or other expensive materials – it's not a bunker. We're talking about reasonably affordable materials. A Class A roof, which is the highest rating for fire resistance, is the No. 1 thing, and that is widely attainable. Most people have it. Then it's about exterior walls and the design of the home so that you don't have anything that can burn within five feet of the house. That is key, and it's something we've understood for a long time. Those embers are going to land, roll off the roof, and hit the flammable mulch, shrubs, or other things piled up against the house, and that's going to carry fire to the structure. You have to eliminate that pathway. So, it's relatively simple to achieve, and California's building code helps people achieve it. And it's not like it's free to rebuild a house without the California code – it's going to cost you money regardless. So, I strongly advocate that officials do not waive that requirement and that we collectively look at ways to support individuals who aren't financially prepared to rebuild for whatever reason.

I can hear the argument already: "If this building code is so good, why did we just lose 12,000 structures?" How would you respond?

I'd say look at the Eaton fire statistics. Almost 14,000 structures in those communities were built in 1939 or earlier and did not meet code, at least with the basic structure. We're talking about a very small percentage of the houses that burned in this fire that met the current code, because the code has only been in place since 2008.

We're going to have to wait and see to determine how the houses that did meet code performed in this situation. We have to acknowledge that, even when we have an individual structure on a parcel that's come up to code or has been built to code, if it's 20 feet away from a massive burning structure that isn't extinguished because there are hundreds of other buildings on fire and not enough water, the new building isn't likely to survive that impact, even if it did meet code. Proximity of those burning structures matters, and it's very challenging. We'll potentially see buildings that were built to code that were destroyed because of that issue. Obviously, that does not mean that the code doesn't work or that we should abandon it.

Do you think there's anything that wildfire educators should be using or doing in this moment to drum up more momentum for action in their own communities?

Absolutely. I have heard from my colleagues in other parts of the country saying that they are getting deluged with media calls asking what's going on with wildfire preparation. I think there definitely is that heightened awareness that this is a national and global phenomenon. This is not just isolated to one area of the country; we need to pay attention. For people in the prevention world and in the wildfire world, it is an opportunity to say, "Here's what we're doing in our community. Here's what we need. Here's where we could do more." Rather than bash on people in a situation

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thousands of miles away from us, let's focus on what we can be doing in our own community. I think that's the best pivot that we can make on this. When we have the heightened awareness, let's help people understand this is the moment to educate and to advocate.

Any other key takeaways?

One of the great questions a reporter asked me was, "What's so special about the California building code? I keep hearing how great it is." My response was that there's nothing magical about that code. It's the same principles, the same science that's in NFPA 1140, Standard for Wildfire Protection. The difference is that California actually uses it and enforces it. The reality is that you could have the best content in the world, but none of it works if we don't use it and enforce it and inspect to it. That's really my biggest call for action: let's not continue to perpetuate this problem as we continue to build in areas that are exposed to wildfire risk. Let's use the code.

Jesse Roman is the senior editor of *NFPA Journal* and the host and producer of the NFPA podcast.

Michele Steinberg is director of NFPA's wildfire division, leading a team dedicated to wildfire safety outreach. The National Fire Protection Association is a global nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. Steinberg has worked for three decades in the areas of natural hazards, land use planning, and disaster safety outreach for state and federal government agencies and nonprofit organizations. Steinberg holds a BA in English and American Literature from Brandeis University and a Master of Urban Affairs from Boston University and pens the wildfire column for *NFPA Journal*. Steinberg is a former IAWF board member.

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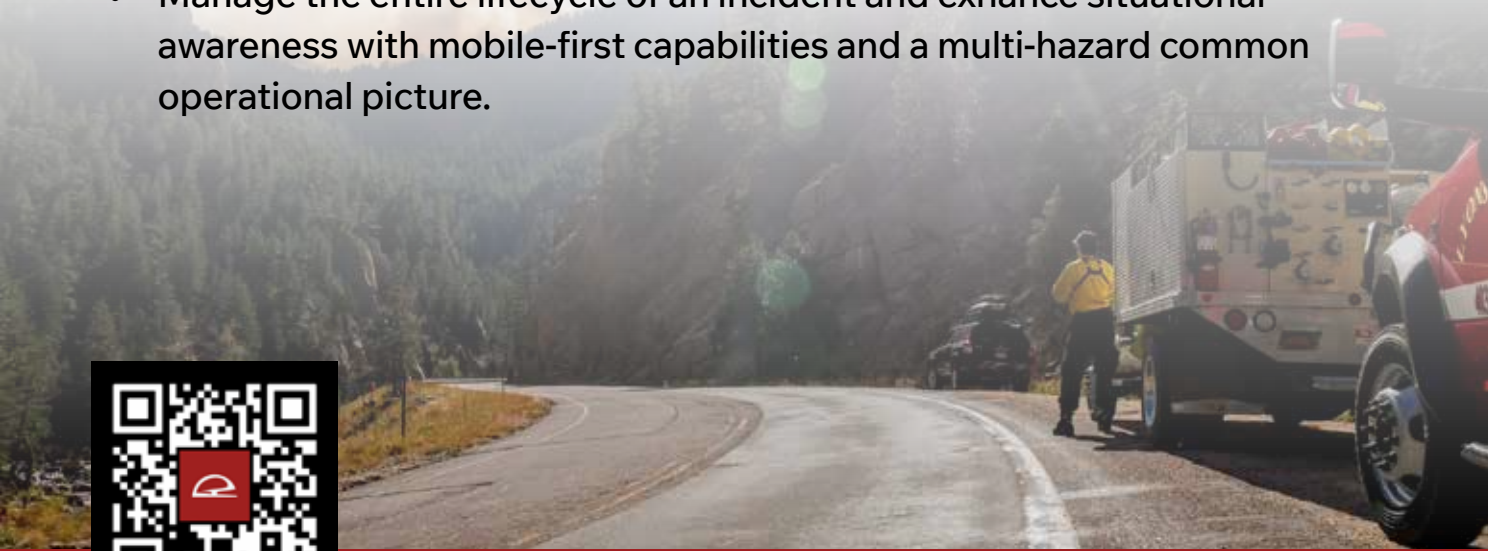

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LA FIRES

POLITICS

BY RON STEFFENS

I came home from supporting the Hurricane Helene recovery in western North Carolina and a simple dash of cinnamon in my coffee set my throat burning. I attributed this to long hours of exposure in a vastly damaged place: trees and homes uprooted; roadways and lifelines slumped; soil and water systems toxified.

Once home, I drank water from working taps, sat in dry chairs under a roof, remembered how lucky we are to spend holidays with family and friends. My throat got better – a bit of personal healing that reminded me of the deep recovery faced by too many neighbors and communities.

Enter 2025, and ignitions amid the worst fire winds – think about Calf Canyon / Hermits Peak in New Mexico in 2022, the Marshall fire in Colorado in 2021, the Camp fire burning through Paradise, California, in 2018 – and again we are sharing, from the disaster's edge to audiences everywhere, the flames, evacuations and fire fight.

In the Palisades fire, as was the case in the Paradise fire and Hurricane Helene, I was a degree or two separated from those who lost homes.

Flood, wind, fire. These are the threads of disaster that we wear, as citizens and in our professions as emergency responders. But these natural physical factors (so clearly augmented by climate change) are now joined by human figures who use and even create disasters as tools in their political gamesmanship.

Fire fighting is engaging, challenging to mental and physical fitness, but it's not a game. I know this work as one of thousands of federal seasonal firefighters yet for weeks we were uncertain if our fireline positions would exist this summer. While it seems seasonals may be hired, we don't know who among our permanent colleagues has been terminated. Though it's clear there will be smoke and fires, the proverbial smoke-filled rooms of politics have needlessly and dangerously mucked up our professional staffing. We're asking, who will work our fire-and-fuel challenges?

Amid the vitriol and manufactured chaos are proponents of functional change – think of the bipartisan initiatives for a unified (and potentially rejuvenated) National Wildland Firefighting Service — but even these initiatives aren't yet including our fire-ground expertise.

Whether we're responders or survivors, we build hope when we're motivated not by the game but by the urgent need to work together and build upon our adaptable and robust systems. Such emergency systems require institutions we can trust, including the U.S. federal government.

Amid crazy-fast fires it's more challenging to follow our safety mantra: keep one foot in the black. Yet this mantra may also guide us in the current political maelstrom. We can wear the whole cloth of disaster like PPE and stay close to the polarizing flood – wait for the crest and then be ready to help our institutions, communities and colleagues by getting back to work. To make order out of chaos, we will do as we always do: lead those on our crews and lead up, with experience and expertise. Remember the fire order that is restated at every dawn briefing: to "Fight fire aggressively, having provided for safety first."

But first, we need to be hired.

Ron Steffens is a long-term seasonal firefighter and fire manager and a prior editor of *Wildfire* magazine and the Wildfire Today website. In the off-season, Steffens teaches at Prescott College in Arizona.

LA FIRES

RESILIENCE

BY AMBER LYNN SCOTT

On the opening day of the California Department of Forestry and Fire Protection (CAL FIRE) Annual Aviation Safety Conference in January, CAL FIRE Director Joe Tyler reiterated a comment he made during a news conference in July: There is no longer a California "fire season" – only a "fire year."

That same day, Santa Ana winds fueled the most catastrophic wildfire to occur in Los Angeles. Viewing wildfire risk as ongoing rather than seasonal inspired California's government to propose a year-round CAL FIRE staffing model, better situating the organization to respond to wildfire risk.

In many ways, the recommendation reflects CAL FIRE's proactive efforts over the last decade to adjust to the emerging new operational environment, such as the acquisition of new technologies that predict and support fire responses year-round.

While many of the post-LA fire news stories about CAL FIRE's possible staffing changes have primarily centered on cost-versus-risk calculations, another important advantage for the organization was less prominently featured but worth highlighting – the potential for staffing model changes to improve firefighter resilience.

Resilience – an individual's ability to maintain a stable equilibrium in the face of difficulty –is an ongoing discussion and research focus amongst many members of the larger wildland fire community.

Ongoing exposure to traumatic events such as the Los Angeles fires puts all first responders, including wildland firefighters, at high risk for physical and mental health injuries, including post-traumatic stress disorder. In a typical career, first responders can experience between 500 and 800 traumatic incidents, with each event serving as a potential site of emotional, physical, or mental difficulty, but also an opportunity to build resiliency.

In the last decade, many organizations have funded programs to bolster individual resiliency, such as CAL FIRE's employee assistance program, which can help people overcome negative impacts of traumatic experiences, and its behavior health and wellness program, which supports wellness units and support services. These programs and services are commendable and represent positive steps in the collective effort to address the impact of frequent traumatic incidents on first responders. However, some health researchers have noted these programs may be underutilized by the requirement of traumatized individuals to proactively seek or engage help. In response to this concern, researchers and first responder communities are investigating how broader resilience considerations may align with planned organizational changes, and how these potential changes could support resiliency in this era of megafires and gigafires.

For example, from my organizational communication scholar perspective, I see CAL FIRE's proposed shift to year-round fire fighting from a seasonal operations model presenting an exciting opportunity for the organization to embrace resilience processes beyond its current programming by restructuring its day-to-day operations to embrace the new normal.

Communication scholars have identified five processes that support resilience: crafting normalcy; affirming identity anchors; maintaining and using communication

networks; constructing alternative logics; and foregrounding productive action while backgrounding negative feelings.

The process of crafting normalcy, defined by U.S. communication researcher Steven Wilson as "talking / acting / interacting so as to help create a sense that things are 'normal,' " can be particularly challenging for organizations using a seasonal fire staffing model in locations now experiencing wildfires throughout the year, rather than their former predictable seasonal pattern.

The Los Angeles fires occurred in January during CAL FIRE's base staffing period, which includes equipment maintenance cycles, annual training programs, and reduced seasonal wildfire staffing levels. The traditional organizational structure worked well during wildfires that presented seasonally but creates a unique resilience challenge for organization members unexpectedly and repeatedly faced with catastrophic fires outside the usual fire season.

When members must respond to wildfires with resource models built on an old norm of fire seasons, the ongoing occurrence of large wildfires outside the traditional fire season can present challenges to reconciling a new normal.

It is exceptionally difficult for people to adapt to a new normal when resources reflect an old normal model. Thus, the mismatch of staffing and resources with wildfires may also create more significant resiliency challenges for those attempting to craft normalcy. On a positive note, the proposal to potentially adjust the CAL FIRE organization to a year-round staffing model may not only improve the tactical response to California's wildfires but might also situate the organization to increase member resilience by crafting the new normal that matches resources and staffing with California's wildfire reality.

Beyond staffing changes, there may be other opportunities for wildfire organizations to build resiliency beyond mental health programming. Some resiliency practices exist in first responder organizations but may be taken for granted or not easily recognized as important resiliency contributions. For example, including regular discussions of personal experiences managing large wildfire responses during training or debriefing sessions supports the development of multiple resiliency processes. Having team members share their experiences with traumatic wildfire events can support ongoing organizational learning and facilitate the normalization of open, honest talk about catastrophic fire trauma impacts.

Incorporating open discussions into training can also encourage organization members to develop, use, and maintain communication networks, another important resilience process. The creation of communication networks may also impact other resiliency processes, such as affirmation of identity anchors, when individuals relate to each other and bond over their shared experiences of managing catastrophic fire.

Unfortunately, catastrophic fires have impacted every facet of the global wildland fire community, and my initial research indicates the impacts of these ongoing catastrophic fires also show no sign of lessening soon.

The increasing number and magnitude of fires can make it difficult for organizations to prioritize long-term resiliency efforts when resources are already stretched perilously thin. However, the scholars, practitioners, and leaders who comprise the greater wildfire community can help facilitate resiliency in organizations by sharing ideas, experiences, and stories like those included in this issue of Wildfire magazine.

By prioritizing regular discussions of member resiliency as part of the overall effort to manage wildfire risk, the scholars, practitioners, and leaders who comprise the greater wildfire community can collectively identify and support opportunities to build more resilient organizations despite the increasing number of traumatic wildfire events unfolding.

IAWF board member Amber Lynn Scott, PhD, is an assistant professor of organizational communication at the University of Kentucky. Her research focus includes organizational communication and group communication within high reliability organization (HRO) and high reliability team (HRT) contexts. Scott's previously published research includes an examination of CAL FIRE's aerial firefighting teams' communication practices during initial attack fires and an exploration of Air Tactical Group Supervisor (ATGS) communication training. Prior to academia, Scott served as an HRO/HRT leader in the U.S. Navy including serving as the public affairs / safety officer for the U.S. Navy Flight Demonstration Squadron, the Blue Angels.

FIRE PATTERN INDICATORS

CONTINUED RESEARCH WILL REFINE PROCESSES

BY SHAWN ZIMMERMAKER

The National Wildfire Coordinating Group (NWCG) in the United States is an interagency governmental organization that develops wildfire training and qualifications standards.

The NWCG has established working teams and a subcommittee to develop and maintain what has become the internationally recognized NWCG methodology for wildfire investigations. Foundational to this methodology is an understanding of fire pattern indicators, or FPIs.

When historical events can't be physically witnessed or reproduced, evidence is gathered to reconstruct the past. Like an archeologist examining artifacts to learn about historical events, a wildfire investigator pieces together FPIs to interpret directional travel of fires, and the origin and cause of wildfires.

Whether an archaeologist or investigator, context is crucial. Without context, artifacts or FPIs are just standalone items of evidence. Context provides background information that influences how a scene is interpreted. Wildfire context includes but is not limited to weather, topography, fuels, and suppression actions. When evaluating a wildfire scene, a comprehensive standard approach is required to understand the relationship between FPIs and its overall context.

FPIs are fire effects created during the passage of a wildfire; they are the physical evidence of fire progression and provide information about the fire's behavior, weather, spread, and intensity. FPIs develop within the localized fire behavior context and applicable fire behavior principles and dynamics. When properly analyzed each FPI reflects the direction of fire progression at its location; each FPI is a valuable tool to locate the origin and cause of a wildfire.

HISTORY

Prior to the 1960s, wildfire investigations were based on a rudimentary understanding of fire dynamics and spoken word within governmental bodies. Investigations were conducted as a cause and origin process to identify causes that could be targeted with fire prevention programs.

As mid-century approached, wildfire investigations began to transition to origin and cause process based on the emergence of a systematic approach and recognition of FPIs.

As the U.S. Forest research facilities became established and expanded, the need for scientific research into forestry and wildfire was recognized, leading to improvements in forest management and conservation and broadening the understanding of fire development and spread.

These research stations also played a significant role in developing science associated with various causes, (exhaust carbon, catalytic converters, bullets, etc). Over the years, wildfire investigators have relied on the research documented by these facilities for origin and cause determinations. However, some of the material could benefit from an updated evaluation using modern research techniques, and researching previously unexamined wildfire causes and ignition sources.

By the mid-20th century, literature emerged focusing on identifying the origin of wildfires and reflected a shift from a cause-and-origin emphasis to an origin-cause methodology; this was propelled by an expanding comprehension of FPIs and their role in locating ignition areas.

Arrow shows the angle of char fire pattern indicator; the fire moved from right to left. Photos by Jeff Henricks.

Arrow shows the angle of char fire pattern indicator; the fire moved from right to left. Photos by Jeff Henricks.

The angle of char fire pattern indicator in a backing fire; the fire moved from right to left. Photo by Richard Woods.

HISTORY

1960: According to Richard Ford, retired fire investigator with the California Division of Forestry (CDF), now known as CAL FIRE, up until the early 1960s, wildfire investigation remained largely speculative, lacking scientific methods or analysis and FPIs. Ford believed the focus was often on identifying the cause and origin using cursory evidence and referred to these initial methods as educated guesses. In the summer of 1960, while examining a wildfire, Ford was asked about the direction of grass stems laying on the burned ground; this sparked Ford's curiosity and drove him to develop a method to determine an accurate ignition area. By 1961, Ford began to understand the grass's directional clues and established a systematic approach to locating the ignition area of wildfires.

1962: Ford presented an evidence-based wildfire investigation methodology to a group of CDF law enforcement officers at the CDF Ione Fire Academy. Met with skepticism, Ford was challenged to prove the efficacy of his methods by determining the origin of an actual fire. He was successful, and earned recognition for his methodology, which was adopted by colleagues. At the same time, Bill Longacre, a United States Forest Service (USFS) wildfire investigator, was conducting independent research tracking wildfires to their source. By the mid-1960s, Longacre began to share his work with peers. The current NWCG methodology incorporates many of the FPIs traced back to the contributions of Ford and Longacre.

1969: *Kirk's Fire Investigation* textbook introduced a seven-page chapter titled Fire Patterns of Outdoor Fire, which presented principles of wildfire behavior and focused on the V patterns of fires spreading uphill without the influence of wind. The method for deducing the direction of fire spread was based on locating the most damaged side of vegetation, which was assumed to be facing the oncoming fire. This edition did not include an analysis of the FPIs introduced by Ford and Longacre.

1971: Ford authored a paper titled Fire Scene Investigation of Grassland and Forest Fires published in *Fire and Arson Investigator* magazine. The article presented several FPIs, including grass stem fall, char angles, white ash, depth of char, tree trunk and crown charring, foliage freeze, cupping, sooting, and staining.

1978: NWCG published its first major wildfire investigations work titled *Wildfire Origin and Cause Determination [NWCG Handbook 1].* The 41-page handbook attempted to systematically document the then recognized FPIs, including eight that were consistent with those presented by Ford in1971. Refinement of what would become the NWCG methodology continued as new knowledge became available through practical field work and research. One example was change to the practice of entering the burn through a backing area, where some FPIs were often more discernable. This occurred after USFS investigator and instructor Lowell Mansfield noticed that students were overrunning ignition areas as they worked from a backing area toward an advancing area, often leading to the degradation of the scene and evidence. Mansfield proposed a new practice of entering the fire scene through an area of advancing fire progression, where FPIs are more demonstrative. He introduced this technique to Ford, who despite initial skepticism, came to agree with Mansfield and included this change in his 1995 book *Investigation of Wildfires.*

1980: The USFS, National Park Service and the Bureau of Land Management asked the Federal Law Enforcement Training Center (FLETC) to design, develop, and implement the National Wildfire Investigation Training Program (NWITP). By the following year, subject-matter experts had developed a comprehensive peer reviewed training program and conducted its first presentation. The NWITP gained recognition and adoption in the United States and abroad, featuring 12 FPI types in line with the FPIs in the NWCG Handbook 1 and Ford's 1971 article.

1982: Bob Bourhill from the Oregon Department of Forestry made a significant contribution to wildfire investigation with a research report based on fieldwork, empirical testing, and actual wildfire scenarios. Bourhill's A Guide to Natural Cover Wildfire, Fire Direction Indicators focused on eight FPIs aligned with those in the NWCG Handbook 1.

1983: An update to Kirk's Fire Investigation included a new 15-page chapter titled Grass and Wildland Fires and Their Investigation. It presented seven FPIs that mirrored what Bourhill had previously documented and were also integrated into the 1981 NWITP curriculum.

1987: Ford wrote and published Investigation of Wildfires, building on his studies from the 1960s. Ford's book, which was updated in 1995, helped establish the use of FPIs, a practice adopted by and included in the NWCG methodology, Handbook 1 and the NWITP.

1992: A working team of NWCG subject-matter experts produced a course titled Wildfire Origin and Cause Determination, also referred to as P-151, based on the NWITP and Handbook 1; the course presented 13 FPIs.

The first edition of NFPA 921, Guide for Fire and Explosion Investigations was published, featuring a peer-reviewed section on fire patterns. While primarily addressing structure fires, the standard did not include a specific chapter on wildfire investigation but did introduce the concepts of heat shadowing and protected areas. These concepts, collectively known as the protection process, form the basis of numerous FPIs recognized by the NWCG methodology.

1992-1999: The NWCG P-151 course emphasis on FPIs achieved global reach. In Spain, a training guide titled *Investigation of the Causality of Forest Fires,* was published in 1999. This manual graphically encapsulated the fundamental concepts of wildland fire behavior and investigative techniques as taught in the P-151 course.

2000: A group of international wildfire investigators recognized a need to revise the existing *Handbook 1* and related training course. In response, NWCG chartered a wildland fire investigation working team with instructions to develop a series of wildfire investigation courses. Th included a revision of P-151 that would be replaced by NWCG FI-210 wildland fire origin and cause determination curriculum. The working team, made up of subject-matter experts from the United States, Canada, and Australia, later became the wildfire investigation subcommittee (WFISC).

2001: The peer-reviewed 2001 edition of NFPA 921 included, for the first time, a chapter focused on wildfire investigations. The chapter included sections discussing 12 FPIs consistent with Ford's 1995 book, and NWCG publications such as NWITP, P-151, and the *NWCG Handbook 1.*

2005: WFISC released course material titled Wildland Fire Observations and Origin Scene Protection for First Responders FI-110. By May 2005, WFISC released the updated version of *Handbook 1*, and the FI-210 (40 hours, with an emphasis on field exercises) curriculum that replaced the P-151 course. Both included a detailed discussion of 14 FPIs with *Handbook 1* being the source document for the FI-210 curriculum.

2007: WFISC created additional courses expanding the training available to wildfire investigators; these included Wildfire Case Development and a railroad fire course. By 2013, a powerline fire course had also been completed.

2008: Spain released an updated edition of its 1999 wildfire investigation guide, spanning 405 pages. This comprehensive document encompassed topics such as fire pattern analysis and methods for determining the ignition area of wildfires.

The 2008 revision of NFPA 921 included an 11-page peer-reviewed introduction to 12 FPIs and basic wildfire behavior principles.

2011: In response to a request from the NFPA technical committee on fire investigation, subject matter experts from the WFISC participated in the revision of the wildfire investigation chapter. This revision marked the beginnings of an alignment between the NWCG and NFPA that continues and included the 2024 revision.

2016: The WFISC published the *Guide to Wildland Fire Origin and Cause Determination*, which superseded the 2005 edition. This 337-page guide became the cornerstone of the FI-210 curriculum and identified 11 categories of FPIs based on wildfire behavior principles and dynamics. These 11 FPIs have been peer reviewed and tested through decades of field application and validated by live fire exercises, as required by the FI-210 training program.

2022: Assigning a task group of subject matter experts, WFISC began the process of updating the PMS 412 and FI-210.

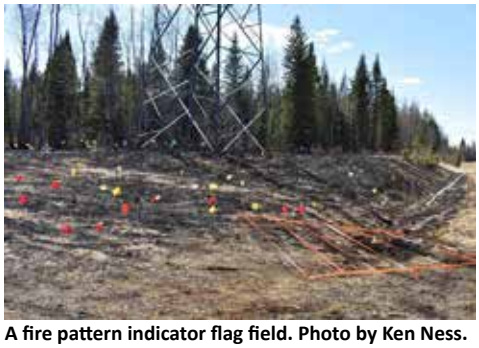
Matthew Danckwerts, a fire investigator in South Africa, presented a thesis titled P*hysical patterns and post-hoc measures of wildfire behavior in grassland: Relevance of forensic indicators in wildfire investigations.* Danckwerts found ash color, curling, and spalling to be unreliable indicators but grass consumption, stem fall, leeside charring, protection, sooting, and staining to be reliable especially when interpreted in clusters in proximity to each another. He also recognized the need for broad knowledge and understanding of fire behavioral processes when evaluating FPIs.

2023: Albert Simeoni, head of the fire protection engineering department at Worcester Polytechnic Institute, and fellow researchers published an article titled *A preliminary study of wildland fire pattern indicator reliability following an experimental fire,* in which they concluded, in part, that FPIs are useful tools to determine the direction of fire spread but must be interpreted in the frame of a global analysis. The researchers also found an understanding of fire behavior and dynamics is mandatory to understand FPIs and their underlying uncertainties.

2024: Keith Parker and Vytenis Barbrauskas published an article titled *Validation of NWCG wildfire directional indicators in test burns in coastal California* in which they concluded, in part, skilled investigators, trained in using FPIs as described by NWCG and taught in FI-210, can use these teachings along with extensive knowledge and experience to regularly produce reliable determinations of an often quite small specific origin area.

2024: WFISC updates were completed, and the revised PMS 412 was made available in March while FI-210 course was pending publication. WFISC recognized the need to accelerate its revision process to every three years. Whereas each update cannot completely capture all possible needs, WFISC recognized the field needs timely updates and improvements to the investigative process. WFISC submitted multiple study proposals, all of which are pending approval for funding.

A parallel lane search of a specific origin area. Photo by Ryan Andrade.



A fire pattern indicator flag field. Photo by Ken Ness.

A grass stem fall in a backing fire. Photo by Ryan Andrade.

A sooting fire pattern indicator on a cluster of rocks. Photo by Ken Ness.

INTERNATIONAL ADOPTION AND USE

The NWCG methodology and FPIs have been embraced internationally. In 1994, FPIs were introduced in New South Wales and Victoria and by 2000 were formally adopted by most Australian states. Australian-led engagement with South Korean officials in 2005, along with informational sessions with Chinese and Indonesian land managers occurred in 2006. Similarly, an Australian initiated engagement with the Netherlands pioneered the European adoption in 2011, followed by subsequent training in Cyprus, Denmark, Finland, Sweden, Wales, and the United Kingdom. Expansion continued with the inclusion of students from Belgium, Estonia, and France in 2015. The FI-210 methodology was introduced in South Korea in 2015 followed by New Zealand. The use of FPIs, stemming years of successful fire scene examinations in the United States, has been adopted in Australia, Canada, Europe, Belize, Brazil, Bolivia, Chile, Colombia, Ecuador, El Salvador, Greece, Guatemala, Honduras, Jamaica, Lebanon, Mexico, Portugal, and Spain.

REVIEW AND REFINEMENT

Wildfires demand rigorous investigations to determine their origin and cause. The use of FPIs combined with fire context, has been the cornerstone of reliable wildfire investigations for decades and has proven to be a successful tool globally. Fire behavior experts, forensic scientists, and investigators have located origins, collected ignition sources and analyzed FPIs using this accepted methodology. There are many high-profile cases in which this methodology has been successfully applied.

In 2018 investigators used FPIs to identify an ignition area of the Camp fire in California two days prior to viewing images that supported their findings.

A 2019 serial arson investigation in Minnesota used FPIs to identify ignition areas. After an arrest, the arsonist took the investigators to the field to identify exactly where he had ignited fires, which aligned with determined ignition areas.

In 2017 investigators on the Shast-Trinity National Forest identified an ignition area utilizing FPIs. Unknown to investigators, a local agent had interviewed a witness who had taken a photo of the fire when it ignited. The agent did not share that photo with the investigators until after they completed their investigation because he wanted to see if they would get it right. The investigators' FPI-identified ignition area matched that of the photograph.

In 2017 in Los Angeles County an independent investigator re-evaluated a fire after the primary investigator did not locate an origin and determined the cause of the fire to be undetermined. The primary investigator did not use the methodology of FI-210 or PMS 412. The independent investigator did use the FI-210 methodology and identified FPIs still present 14 months after the fire, tracking the fire back to an ignition area. In 2022, a video surfaced taken

by a passing motorist that confirmed ignition area was accurately located by the independent investigator.

Despite the success and usefulness of FPIs, the discipline of wildfire investigation must continue to expand to identify and address any potential gaps in the understanding of FPIs and what influences them, improve / refine methodologies and techniques, expand the educational base for future investigators, and create new areas of inquiry or challenge previous assumptions.

FUTURE RESEARCH

The knowledge of FPI formation and dependability largely stems from empirical observations and the consensus among subject-matter experts. However, there is a need for ongoing research to deepen the fundamental understanding of fire dynamics that influence the formation of FPIs and their reliability in specific circumstances.

FPIs require continued research to examine how they manifest in the differing areas of fire progression. In standard fire behavior terminology these areas are known as head fire, flanking fire and backing fire. Within the wildfire investigation field these areas are also recognized as advancing (head), lateral (flank), and backing (backing/heel).

This research is critical regarding variables encountered in fuel, weather, and topography, specifically the influence of fuel load / type, fire duration, fire intensity, fire severity, wind, and the impact of slope.

Incorporating the expertise and experience of seasoned wildfire investigators is crucial to future studies, as their investigation experience will help to validate variables that must be considered in research. Research should also further explore the specific fire behavior that results in each unique FPI and identify factors that may alter their typical formation, along with their reliability under specific influences. Evaluation is also needed to explore expanding additional FPIs beyond the 11 currently recognized.

A windblown v-pattern; the fire moved right to left. Photo by Brenda Rice.

Continued research – aimed at the scientific community, fire management professionals, and investigators – would yield enhanced validated data that could corroborate the reliability of FPIs which, in turn, could establish more effective fire management and pre-fire mitigation strategies and increase the value of training materials and doctrines employed by wildfire investigators worldwide.

The international use of FPIs when assessed with the methodology as recommended in FI 210, has provided the international wildfire investigation community with a reliable and accepted process to investigate the origin and cause of wildfires for many years.

Ongoing research will play a critical role in improving these practices. The evolving understanding of wildfire behavior and the emergence of wildfire technology along with ongoing research and collaboration will allow for the enhancement of investigations.

Future research will ensure wildfire investigators are informed, adaptable, and confident in their crucial roles of accurately identifying the origin and cause of wildfires they investigate, for the benefit of the communities they serve.

Special thanks to the WFISC for input and support, in particular Jeff Henrick, Richard Woods, Brenda Rice, Ken Ness, Alan Carlson, Gary White, Jim Shanely, Theo Bailey, and Paul Steensland.

Shawn Zimmermaker is the northern region deputy chief of law enforcement and fire prevention for the California Department of Forestry and Fire Protection (CAL FIRE), where he oversees law enforcement and fire prevention programs. Zimmermaker manages major fire investigations, serial arson criminal investigations, and civil case procedures and chairs the wildland fire investigation subcommittee of the National Wildland Coordinating Group (NWCG). Zimmermaker has served as a subject matter expert for the National Fire Protection Association (NFPA) during the revision of the wildland fire investigation chapter of NFPA 921. Zimmermaker has a Bachelor of Science degree from Humboldt State University, with a major in forestry and minors in watershed management and environmental ethics.

A COMMON-SENSE APPROACH TO FIREFIGHTER WELLNESS

BY BEQUI LIVINGSTON

After the first few seasons as a wildland firefighter in the early 1980s, I developed a program called Fireline Fitness, for which I own the trademark (find it at www.bodysensewellness.org). As a fitness specialist, I was dismayed at the lack of a comprehensive wellness program within the wildland firefighter community; the only semblance of fitness was the step test, which was a meager standard of overall fitness with no indications of overall wellbeing. I knew the importance of overall wellness, especially as a wildland firefighter whose life depended on it. The next several decades provided opportunities for the Fireline Fitness program to evolve.

Fireline Fitness revolves around the five key aspects of wellness: physical; mental; emotional; relational; and spiritual. When all the aspects are in balance, our health and wellbeing tend to be in balance. However, when things go catawampus and become out of balance, our health and wellbeing suffer.

Fireline Fitness provided a common-sense approach to health, fitness, and wellness, incorporating the essential components, realizing that wildland fire fighting is not just about physical fitness; it's about paying attention to all the components of wellness, while listening to our bodies' innate wisdom to ensure that our health and wellbeing isn't compromised.

Physical wellness incorporates all the aspects of fitness, movement, nutrition, hydration, injury prevention and mitigation, rest, recovery, and sleep. The physical aspect is critical in wildland fire fighting but often takes precedent over the other facets. For decades, physical fitness has been highlighted as the most important factor in wildland firefighting. Even the step test and subsequent work capacity test highlighted this.

In 2013, exercise and sports psychologist Katie Sell from Hofstra University and I implemented the Wildland (Firefighter) Fitness Assessment Battery (WFAB) to highlight the importance of a well-rounded fitness program including aerobic and anaerobic capacity, muscle strength and power, muscle balance, core strength, lower back strength and flexibility. Among members of the wildland fire groups who tested the program, flexibility was extremely weak, especially in the low back and hamstring muscles, and there were a multitude of imbalances of opposing muscle groups. No wonder there were so many low back and hip injuries being reported!

Mental wellness focuses on brain health and the ability to make safe and sound decisions, especially in the face of adversity. Our mental aptitude is critical to the job, especially for personnel who need to be on top of their game, making life and death decisions.

That's why it's so important to focus on mental wellness, year-round, ensuring that you are not overwhelmed or stressed and can function in the face of disaster. Equally important is understanding when you're not at the top of your mental game and taking a break to focus on self-care.

Stress often causes the nervous system to take control, with a cascade of hormones that oscillate throughout our body and affect the brain; this can adversely affect cognitive ability to make safe and sound decisions, especially in survival mode. Some call it, amygdala hijack – when the pre-frontal cortex (cognitive decision-making part of the brain) goes offline and our amygdala takes over, putting us in survival mode.

Emotional wellness is sometimes the most misunderstood, especially in our can-do world of wildland fire. Yet, it's one of the most important aspects for overall wellbeing, because we deal with so much traumatic stress and grief. It's essential to feel emotions and talk about experiences, rather than pull up our bootstraps, as many of us have been taught. Grief is the body's natural way of processing loss. Yet our society and even our wildland community often minimizes grieving, not giving our emotions anywhere to go other than being stuffed into the somatic body and psyche. What is known is that our emotions are the body's natural process of letting go of this energy, and when not expressed, will often manifest in chronic pain and illness. Allowing the tears to flow, and verbal ventilation (talk therapy) when needed, is a healthy, and normal expression of grief and mourning. We were never meant to grieve alone.

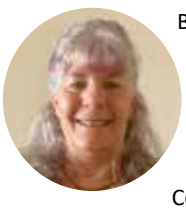
Relational wellness is also not often talked about but is so important. We are hard-wired for connection in safe and healthy relationships. But when we are stressed, our closest relationships often take the hardest hit. Just look at the statistics of divorce in the wildland fire community, which are similar to marriage breakdown rates among combat veterans during wartime. Being a wildland firefighter, or fire personnel, has a huge impact on our partners, children, families, friends and pets. It doesn't have to be this way, if we are aware and informed.

Practicing tools such as non-violent communication, honesty, humility, trust and safety should be cornerstones of all relationships. When we are stressed and / or traumatized, we often isolate ourselves, turn to addictive behaviors, and / or shut down; this is not healthy for any relationship. Learning how to safely communicate our experiences and seek help from safe and trusting professionals should always be encouraged. Remember that loved ones are equal partners in our wildland world; they experience stress and trauma much like we do, even if they aren't on the fire line.

Spiritual wellness is sometimes confusing and awkward to discuss but it's vital to our wellbeing. I remember a few years back when my best friend and I were teaching wellness workshops, using some of the spiritual wellness principles and being told by agency leaders that we could not use the term spiritual.

Spiritual wellness is personal and unique to each person's interpretation and choosing. The easiest way to explain is by saying that spirituality is anything that brings you purpose and joy along with a sense of something greater than yourself; it could be religion, prayer, meditation, mindfulness, yoga, music, dance, nature, children, pets, or quiet walks in the woods or watching a sunset. Spiritual wellness gives you a sense of awe, joy, purpose and passion, and it's yours to determine for yourself. It's important to have something to hold on to, especially when everything around you is falling apart.

My challenge to you is to find ways to balance all aspects of your wellness. And, most importantly, know when you have reached your limit, or are out of balance, and learn how to get back on track. Stay fit, take care of your brain and nervous system, listen to your body and emotions, make your relationships a priority, find things that bring you meaning, and ask for help and support when needed.



Bequi Livingston was the first woman recruited by the New Mexico-based Smokey Bear Hotshots for its elite wildland firefighting crew. She was the Regional Fire Operations Health and Safety Specialty for the U.S. Forest Service in Albuquerque, New Mexico. Contact her at bequilivingstonfirefit@msn.com

LESSONS LEARNED FROM A LONGTIME LEADER

BY MIKE DEGROSKY

"It is so cool to have watched a person you know develop from exploited child worker to the leader of one of the most important and high-profile things his agency has going on." Those were tongue-in-cheek remarks I made at a recent retirement party for a colleague I have known since he was 16. Thirty-six years later I can still remember noticing a few things about this kid that worked out in the fire cache; he was personable; did a good job fitting in; and he was a go-getter. When we later hired him as a firefighter, he immediately took to the work and quickly advanced up the seasonal employment ranks as his capacity for leadership also emerged.

I left the agency but returned many years later as the chief of fire and aviation management, where he was now a fire management officer. I told the party-goers that while I had never mentioned this to my colleague, I was comforted knowing he was in his role, in part because I thought it likely I would need him as a resource as I figured out my challenging new job. I explained how that came about sooner than expected, and in a way I had not anticipated, when he invited me over for a meet and greet and, in a trademark direct and unvarnished style, told me exactly what he thought while people around him nodded their heads. I also acknowledged that those of us who knew him well knew that this was me hearing, straight-up, things I needed to know – something many of us had experienced and something I appreciate about the guest of honor.

I joked that he, however, did not know I had a secret weapon – that I would make him help me do my job, including asking him to do things he didn't really enjoy and didn't want to do. And help me he did – another thing I deeply appreciated. A few years later, the honoree, who had been in fire his entire career, stepped out of the fire program to lead a new initiative. Outside his discipline and previous experience, this was also a challenge to which he could apply the skills he had developed over 30 years. I acknowledged how he had worked his way up the organization and that I found it evident that at each stop he had earned the trust and respect of the people with whom he worked. I told the assembly that for a leadership nerd like me, there was much to be learned from the guest of honor's career. I had the following on my mind.

First, his longevity. Longevity can be a curse if people stay longer than they should or do not grow and adapt with the organization's needs. But, with longevity can come mastery and competence, knowledge, and wisdom. It can prove challenging to balance one's long tenure with value and relevance to the organization and its people, but this person worked for the same agency for 36 years and was still

It can prove challenging to balance one's long tenure with value and relevance to the organization and its people, but this person worked for the same agency for 36 years and was still a respected and sought-after colleague, who led a new and innovative initiative when he retired.

a respected and sought-after colleague, who led a new and innovative initiative when he retired.

I was also thinking of his authenticity – the personable nature, the ability to relate to people and fit in, the work ethic, the natural talent for fire work, and the capacity to lead that I first saw in a very young man all continued to serve him well for 30 more years. It is important for leaders to know themselves and to take a leadership approach that incorporates their strengths.

I was also thinking about his ability to communicate assertively. Knowledge, experience, good ideas, and influence do little good trapped in silence. Leadership frequently requires communicating difficult, often disconfirming information to people including those above us. Effective leaders need to prepare themselves as best they can for this important task.

I appreciated the man's generosity in sharing his talents. I asked him to engage in processes he did not particularly enjoy. He sometimes resisted but, consistent with his reputation, he knew his knowledge, skills, abilities and experience were needed and he stepped up.

He knew when to move on. I told the people gathered to honor him that I was disappointed when this colleague stepped away from the fire protection program. I joked that I took it personally and had been a little mad at him ever since. But, in reality, I understand that he recognized that he was ready for a new challenge and that his skills could benefit the agency in a new way, and I respected that. It would be easy to observe this man's career as an unusually steady climb up through the ranks of his agency, but he moved around. I imagine that along the way he had applied for positions for which people told him he was a long shot; he took challenging temporary assignments; and, ultimately, he took a chance on doing something completely outside his previous experience.

Finally, during my second tenure with the agency one thing became obvious; the guest of honor was liked, respected and trusted throughout the organization, by peers, subordinates, and superiors. You know you are getting old when you have observed a colleague's entire career, but I am grateful that my friend and I crossed paths twice at the opposite ends of his career. As a student of leadership, I try to grab the learning wherever I can.

Mike DeGrosky is a student of leadership, lifelong learner, mentor and coach, sometimes writer, and recovering fire chief. He taught for the Department of Leadership Studies at Fort Hays State University for 10 years. Follow Mike via LinkedIn.

BOARD MEMBERS ELECTED

SUCCESSFUL APPLICANTS BRING DIVERSE EXPERIENCE

Originally from England, **Meg Dolman** relocated to Boise, Idaho, to advance research on human and wildfire interactions. Dolman's PhD work with the Human-Environment Systems group at Boise State University focuses on reducing human exposure to wildfire hazards using both quantitative and qualitative approaches.

Dolman is a recipient of the Joint Fire Science Program Graduate Research Innovation (GRIN) award, which supports her work mapping built infrastructure using remote sensing.

Dolman serves as a trustee fellow on The Nature Conservancy Idaho Chapter board of trustees, contributing her expertise to conservation initiatives.

Collaboration is central to Dolman's work, and she has actively engaged in partnerships to facilitate knowledge exchange between the United State and United Kingdom on community wildfire resilience and property protection.

Additionally, Dolman has worked with Leave No Trace to develop best practices for minimizing the spread of invasive plant species in recreational areas.

Beyond Dolman's specific research interests, she is passionate about science communication and education.

Dolman holds an M.Sc. in biodiversity, conservation, and management from the University of Oxford and a B.Sc. in physical geography from Royal Holloway, University of London.

Kerryn Little is a postdoctoral researcher at the University of Birmingham.

Little started her fire career as a rural volunteer with Fire and Emergency New Zealand before moving to the United Kingdom to complete a PhD in geography as part of the European innovative training network PyroLife.

Little is interested in understanding the interacting controls on fuel moisture, fire weather and fire danger across spatiotemporal scales, including compounding and cascading hazards, fire-climate interactions and live fuel moisture content, toward improving the ability to predict extreme fire conditions.

Little has co-led the development of a fire behaviour prediction system for the United Kingdom as part of the Towards a UK Fire Danger Rating System project and is the current UK representative on the COST Action project NERO – European Network on Extreme fire behavior.

Little is passionate about bringing people together and increasing collaboration between historically fire prone and emerging fire prone regions (especially temperate environments experiencing increasing wildfire risk).

Alistair Smith is a professor of wildland fire science in the College of Science at the University of Idaho.

Smith has more than 20 years of research and teaching experience related to wildland fire science since completing his PhD at King's College London.

Smith's research primarily focuses on improving understanding of vegetation severity following fires by connecting fire behavior with plant physiology.

Smith has served as an associate editor on the International Journal of Wildland Fire since 2009 and previously served for multiple years on the International Association of Wildland Fire scholarship committee.

Smith has also previously served on the governing board of the National Coalition of Prescribed Fire Councils.

Recently, Smith helped create a fire risk management guide for the United Nations Educational, Scientific and Cultural Organization (UNESCO) that was developed to help protect World Heritage Sites and in 2024, he was appointed to serve on the United States Geological Survey advisory committee on science quality and integrity.

Smith serves as the post-fire working group co-lead on the National Aeronautics and Space Administration (NASA) FireSense implementation team.

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FIRED UP

The "Fired Up" initiative features those who have made strides in advancing and contributing to wildfire/bushfire operations, mitigation/prevention, training and research. We invite members of the IAWF and the wildland fire community at large to submit recommendations for individuals and groups that deserve to have their stories shared for publication.

BAMBI'S LEGACY

BY DYLAN BRUCE

The Bambi Bucket™ is a large, collapsable bucket that attaches to helicopters, allowing them to scoop up gallons of water to drop on fires – it isn't named after Bambi Morey, but she always told younger firefighters in the field that it was.

Morey died in 2024, aged 71, and left behind a legacy of dedication for fire management and cherished memories for those who were lucky enough to know her.

Photo courtesy of Kely Morey.

Morey's career fighting wildfires began in 1986, when she took over the volunteer fire department in Gardner, Colorado, with her husband Craig; by 1989 they were both working with the US Forest Service.

As assistant chief and then chief of the Gardner Fire Department, Morey built the department into an impressive bastion of the community, with new trucks and equipment, plenty of volunteers, and a substation to help respond to fires.

From her very first fire, Morey was hooked on the work, and over the course of her career she fought blazes in nearly all states and even assisted in a space shuttle recovery operation in Texas.

Morey worked as a hand crew and engine crew member, engine boss, and in radio operations, developing a reputation as reliable member of every team she was a part of.

Morey loved working with fire engines, and her pride and joy was her crew's second engine, a custom build known as 501 – the name was a mystery even to her family, and Morey would always excitedly point out when clocks showed 5:01.

Even after she retired in 2009, Bambi refused to let

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anyone else drive 501, which she also referred to as her baby.

Most of Morey's fellow firefighters were men, but she was a strong believer that fire fighting had no gender roles – if you wanted to do the job, you just had to work as hard as everyone else.

Morey was recognized by her peers for her careful planning, compassion, and emotional support, and her grounding presence that helped calm the more nervous junior firefighters was valued by all; by the end of her career, Morey was known to many of the firefighters as Mom.

Morey had to make do with ill-fitting gear designed for men and an absence of any female-oriented resources in the beginning, but as her career went on and more women joined up, things began to improve and fire camps became more accommodating places for her.

There were even some perks to being one of the few women in the field – she rarely had to wait for a shower after a long day on the line.

Morey's work meant that she had to spend a lot of time away from her family – summers were particularly hard, but her children understood that she was doing important work saving people's lives and homes.

In honour of her incredible career, some of Morey's ashes will be placed in a Bambi Bucket and dropped on a fire this coming northern spring – just as she had always joked about.

(The Bambi Bucket was developed by SEI Industries in 1982. The name is trademarked.)

Dylan Bruce is a writer from Melbourne, Australia, who is passionate about the impacts of fire on the environment and society.

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