ISSUE 3 | 2025
UNITING THE GLOBAL WILDLAND FIRE COMMUNITY

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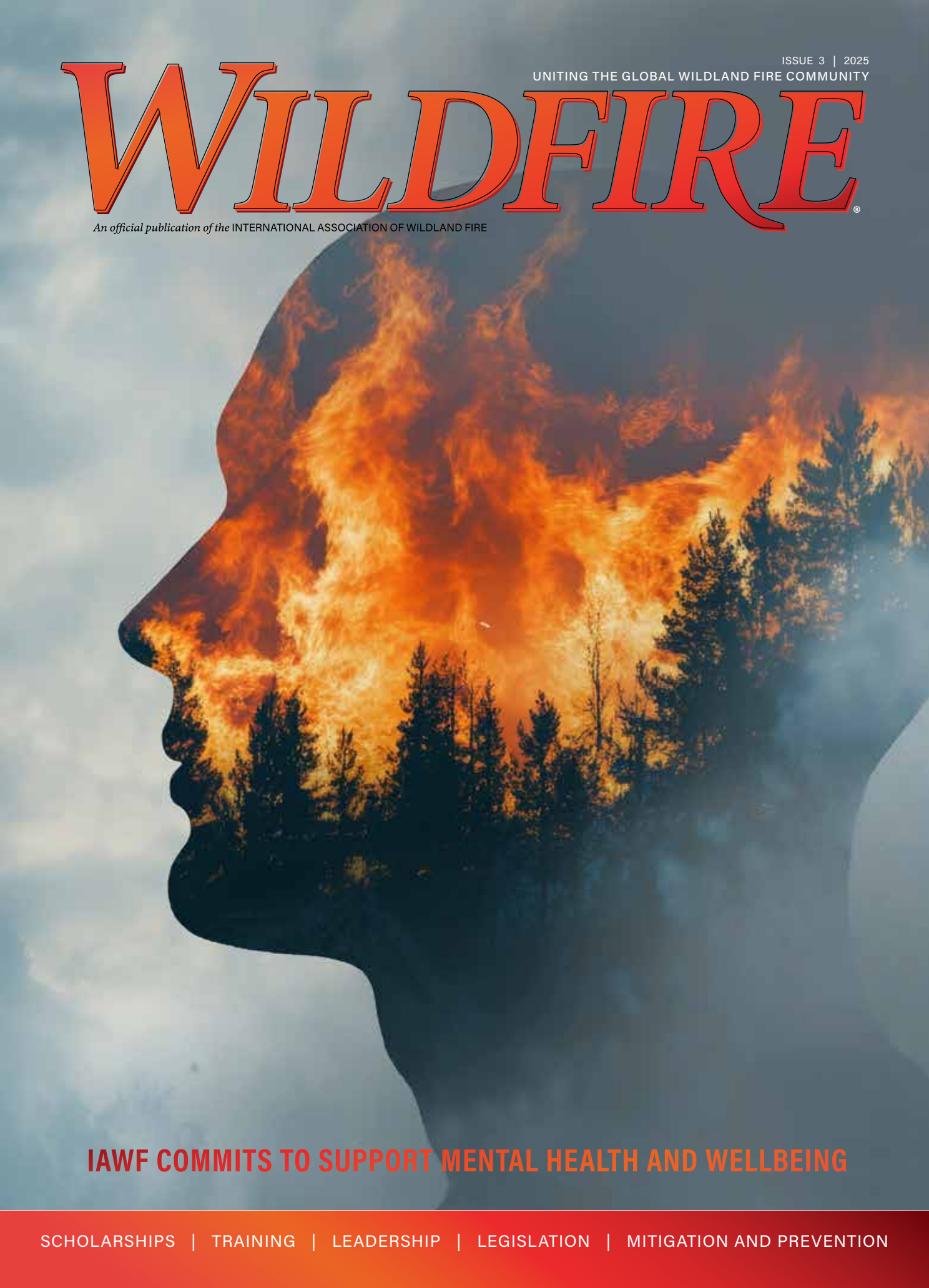
An official publication of the INTERNATIONAL ASSOCIATION OF WILDLAND FIRE



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MAINTAINING GOOD MENTAL HEALTH

Our cover story (pages 16-20), written by longtime IAWF member and associate editor Rich McCrea, explains the association's commitment to providing insight and tools to help wildland fire personnel work through the challenges of maintaining good mental health.

Maintaining good mental health is challenging for everyone in a digital world loaded with political venom. For wildland fire personnel, from land managers to crew bosses to firefighters, maintaining good mental health is, as the influencers say, next level.

The IAWF position statement *Health & Wellbeing in the Wildland Fire Sector* was developed by researchers and issued by the association's board of directors. You can read the entire paper at www.iafwonline.org under What we do / Position papers.

Essentially, the paper holds the IAWF accountable to its members and to fire personnel worldwide to promote health and wellbeing for everyone who works in the wildland fire sector.

How will the IAWF do that? As McCrea explains, the IAWF has embraced a series of actions to coordinate efforts by individuals, workplaces and systems, and will promote research, knowledge and experience sharing. There are four long-term actions and five immediate actions to which the IAWF has committed (page 19), including advocacy and partnerships.

Bequi Livingston knows a lot about the challenge of maintaining good mental health. Livingston, a former hotshot, resumed health and wellness column (pages 22-24) a couple of years ago and has provided wisdom, insight, personal stories of love, loss, agony and success.

In this issue, Livingston tackles coping skills, and tells a moving story about fear on deployment caused by an overwhelmed nervous system. Livingston is a resource who has learned how to maintain – or resume – good mental health even in the worst circumstances. Livingston is a wonderfully open and honest writer, mentor and teacher; her contact information is at the end of her column on page 24. Anyone experiencing mental health challenges is welcome to connect with Livingston – a fellow firefighter and manager – for guidance on resources and a path back to good mental health.

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.

We're fortunate in this issue to have four compelling feature stories.

On pages 12 through 15, Erin Myers and Steve Miller explain the U.S. Department of Agriculture Forest Service's prescribed burn course for agency administrators.

The workshops help the Forest Service meet its goals to treat an additional two million acres of hazardous fuels on national forests and grasslands annually, and to support partners by treating an additional three million acres of hazardous fuels annually on other federal, state, tribal and private lands.

Starting on page 28, IAWF board member Tiago Oliveira writes about the path for a fire-adapted Europe in an era of massive wildfires, fatalities, and property loss. When G7 leaders met in Canada in June and signed the Kananaskis Wildfire Charter endorsing a whole-of-society approach to wildfire, two key reports had just been released in Europe to develop a framework for governance and prevention.

The European Academies Science Advisory Board report, Oliveira says, "notes the firefighting trap or paradox – the over-reliance on fire suppression rather than fuels and land management exacerbates future fires – argues that fire suppression alone is not sufficient, and questions the efficacy of EU policies for their overwhelming focus on fire suppression and emergency response."

Wildfire associate editor Lindon Pronto helped to develop the remarkable feature story Born of the Flames (pages 32-36), by Khaled Taleb, which describes the founding of Lebanon's Akkar Trail Firefighting Team.

And on pages 38 through 44, Natasha Caverley and Keith Atkinson explain the workings of the Forest Practices Board in British Columbia, which audits forest practices, investigates complaints, conducts special investigations, issues special reports, and reviews determinations made by government related to the *province's Forest and Range Practices Act* and *Wildfire Act.*

We'd love to hear your thoughts on our stories, and your ideas for future issues.

PUTTING PEOPLE FIRST

BY TREVOR HOWARD

In June I represented the IAWF at the Global Fire Management Hub (Fire Hub) Plenary in Rome, Italy, held by the Food and Agriculture Organization (FAO) of the United Nations. At a time when climate and global fire regimes are rapidly changing, and many countries are experiencing wildfires and impacts in areas, seasons and at scales beyond the norm, the plenary marked a significant turning point in international collaboration and knowledge sharing.

Bringing together in Rome more than 160 organisations from more than 50 countries, with many more participating online, the Fire Hub Plenary included perspectives from governments, non-government organisations, researchers, policy makers, practitioners and Indigenous groups. There was a strong focus on Integrated Fire Management (IFM), drawing upon the work of Ronald Myers, first published in 2006 by The Nature Conservancy as *Living with Fire: Sustaining Ecosystems and Livelihoods Through Integrated Fire Management*. IFM is holistic, spanning the 5Rs – Review and analysis, Risk reduction, Readiness, Response, and Recovery – with an emphasis on integrating ecological and socio-economic factors. While IFM includes wildfire response, it is much more adaptive, with Community-based Fire Management as a significant component involving participatory approaches as well as local leadership, knowledge and practices. The Fire Hub Plenary featured many speakers and case studies on IFM and participatory community-led initiatives from Asia, Africa and South America as well as other continents.

Also present at the Fire Hub Plenary were many current IAWF members, past and present members of the board of directors and committees, and former presidents, all of whom are well connected across disciplines, organisations and continents. The Fire Hub Plenary was an exciting and rewarding opportunity for me to meet many of these folks in person for the first time and to reflect on how well established and effective the IAWF is at uniting the global wildland fire community. With roots going back to 1990, members in 33 countries, global communications through the *International Journal of Wildland Fire*, *Wildfire* magazine, and the Wildfire Today website, as well as international conferences, symposia and workshops on climate, fuels, fire behaviour, smoke, strategy, human dimensions and safety and many more programs to support people, the reach and influence of the IAWF is significant. The IAWF will continue to engage with

Discussing operational innovation at the North Australia Fire Managers Forum. Photo courtesy of the Department of Fire and Emergency Services, Western Australia.

and contribute to the Fire Hub as it develops and evolves through partnerships and action.

As an Australian, in July I was again fortunate to be involved in an event that brought into focus many outstanding examples and successes of IFM and Community-based Fire Management in my own country. Since 1998 the North Australia Fire Managers Forum has brought together fire managers and practitioners from across the fire-prone tropical savanna regions of northern Australia. The recent forum, in Broome, was held on the traditional lands of the Yawuru people, and included fire agencies, Indigenous groups, non-government conservation organizations, pastoralists and researchers. Through sharing experience and knowledge in managing landscapes for biodiversity, ecosystem services, greenhouse gas abatement, carbon sequestration and other aspects of land management that support cultural and economic benefits, two things stood out. First, vast areas of northern Australia that were previously dominated by unsustainable wildfires are now well-managed by Indigenous-led programs involving traditional knowledge, western science, and technology including crewed and un-crewed aircraft for ignition and satellites for monitoring and evaluation. These landscapes were managed with fire for tens of thousands of years and are now back under Indigenous fire stewardship after decades of disruption. Second, where these successful programs occur, the resulting landscape and community resilience show minimal requirements for wildfire response and the associated high levels of expenditure. The shift from response to IFM is a central tenet of the Fire Hub's global mission.

The focus on people and communities is critical. Just recently, we've seen the tragic loss of firefighters in Turkey and all of us who work in fire management feel that very deeply. Regardless of your role, working in wildland fire management can be demanding, and in some cases dangerous. As climate and fire regimes change, so too will the operational tempo and the effects on all people involved. While individual, cultural and organisational approaches to wellbeing vary, fundamentally people matter. In October, the IAWF will hold the 17th International Wildland Fire Safety Summit and the 8th Human Dimensions of Wildland Fire Conference in Calgary, Alberta, Canada. The conference will be a great opportunity to share, learn and improve, but also to reflect on the impacts that wildfires and fire management have on people and communities. The IAWF will launch the *IAWF Position Statement: Health & Wellbeing in the Wildland Fire Sector*. This paper will be a call to action at every level. A summary and highlights of the paper are on pages 16-20.

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 developmentfor prescribed burning and supports rural fire services, land management agencies and non-government organisations with continual improvement.

Sharing knowledge and perspectives at the North Australia Fire Managers Forum. Photo courtesy of the Department of Fire and Emergency Services, Western Australia.

LETTING GO OF HEIRARCHIAL LEADERSHIP

BY MIKE DEGROSKY

Though it is not all that uncommon, I am still surprised when I encounter leaders of complex organizations with highly capable workforces who take a traditional, hierarchical approach to leadership. These leaders shoulder all the important responsibilities of the organization, make every decision, and then delegate and direct tasks to be implemented.

The appeal of hierarchical leadership is strong. Closely controlled operations can provide a sense of control and predictable comfort for a leader. However, in my experience, the larger and more complex the operation, the harder it is to lead this way, and the more important it becomes to distribute leadership.

Deborah Ancona, a professor in the Massachusetts Institute of Technology Sloan School of Management, defines distributed leadership as "collaborative, autonomous practices managed by a network of formal and informal leaders across an organization."

Unlike traditional, hierarchical leadership approaches, distributed leadership emphasizes sharing leadership responsibilities and authority among multiple people or teams, rather than concentrating those responsibilities in a single person or position. Distributed leadership emphasizes collective action, shared responsibility, collaboration, and empowering people to contribute to leadership consistent with their expertise and experience.

The research is clear: in our increasingly complex and turbulent world, adaptive, people-centered, participative, and distributed leadership is where the work world is headed and what large swaths of the workforce want, need, and expect. Knowing that, when I took my last position, I resolved to lead this way – to broadly distribute leadership responsibilities across my team. My experience is that successfully distributing leadership requires some conditions.

First, the team must share a common sense of mission and a shared a vision for the organization's direction. Second, leaders within the organization must be prepared, and have the capacity to lead and be accountable for their actions when properly supported. Finally, people must be given a level of autonomy within their spheres of responsibility. Autonomy not only expresses but also requires trust, and this trust must be earned. Without high levels of mutual trust, distributed leadership proves very difficult. Once allowed autonomy, people are also understood to have accountability for their actions and results.

So, with those conditions in place, how do we distribute leadership?

First, loosen the reins, surrender responsibilities, let go, and trust people. Distributed leadership requires senior leaders to trust that others can make good decisions and contribute to the organization's success. Let individuals manage their own work and time. This is where a shared understanding of mission and vision comes in. It is so much easier for senior leaders to let go, trust people, and allow them to work autonomously when they know that everyone is on the same page. Permit people to lead. Empower team members to take initiative, direct projects, exert their influence, and contribute by using their expertise and experience.

Be neither a delegator nor a micromanager. Conventional management theory holds that the greater the size of the operation, the more important it is to delegate to others. However, distributed leadership isn't about just delegating tasks. Instead, empower others to step up and take responsibility without being tasked. Avoid micromanaging and resist the urge to jump in and take over. I have marveled, not in a good way, at leaders who direct every initiative and make every decision while surrounded by a deep pool of talent, sometimes representing hundreds of years of experience. Give people the freedom to use their knowledge, make informed decisions, and grow within their roles.

When tempted to jump in and take over, be a coach instead. Coaches give feedback and instruction, but also allow the people they coach to experiment, try new approaches, and make low-impact mistakes in the service of learning. As a coach, you still offer insight and ensure team members make decisions that align with the organization's mission and vision, but the approach is more collaborative than directive. Foster a culture of continuous improvement through feedback and both individual and organizational learning.

Share information and enable all employees to contribute to decisions. Whenever possible, make decisions collectively, soliciting input from the team, limiting unilateral decisions to those that are strictly necessary.

Despite good intentions and my commitment to lead this way, I did not always find it easy. I once hired a program manager, a key position on our team, and I committed to a rock-solid onboarding process including a series of road trips to meet people and orient the new person to our very decentralized operations. As the time approached to schedule the next trip, the program manager informed me that it would be unnecessary as a trip was planned with a colleague instead. Honestly, I was a bit hurt but soon realized that I had gotten exactly what I asked for: I had challenged our program managers to take their programs by the horns, break down silos, integrate their programs, and lead. I was observing an emerging network of distributed leadership. I got over feeling left out and took the win.

Unlike traditional, hierarchical leadership approaches, distributed leadership emphasizes sharing leadership responsibilities and authority among multiple people or teams, rather than concentrating those responsibilities in a single person or position.

My experience – and the research backs me up – is that distributed leadership is good for people, good for the mission, and good for the organization, producing agile, adaptive operations, innovation, engaged employees, better service to constituents, as well as teamwork and cohesion. Share the leadership; I believe you will be glad you did.

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.

ASSOCIATION AWARDS SCHOLARSHIPS

Each year, the IAWF awards two graduate-level scholarships, each valued at US$3,000, to IAWF members who are master of science / arts or doctoral candidates studying wildland fire or wildland fire-related topics.

Javier Freire Herrera is a PhD candidate in public health at the University of California, Berkeley, in the environmental health sciences program. Herrera's research focuses on the effects of environmental conditions, particularly extreme heat and air pollution, on the health of wildland firefighters in Chile.

During the 2024-2025 wildfire season, Herrera conducted a field study with the support of public and private institutions in Chile. Between December and February, Herrera conducted on-site measurements using wearable sensors to monitor, in real-time, physiological variables such as sweating, heart rate, energy expenditure, core body temperature, among others. Herrera also recorded environmental indicators, including the Wet Bulb Globe Temperature (WBGT) and fine particulate matter concentrations (PM2.5), among others.

Data collection occurred during active wildfire suppression and training and routine activities. Additionally, Herrera surveyed 357 wildland firefighters to assess their perceptions of heat stress and other critical aspects of their daily work. Herrera is in the data analysis phase, under the supervision of his academic advisor, Dr. Carisa Harris, and they expect to publish the results of this study soon. Herrera holds a degree in physical therapy (2009) and a master's in ergonomics (2011), both from the University of Concepción in Chile.

Since 2010, Freire has served as a faculty member at University of Concepción, participating in research projects related to ergonomics and occupational health, including the annual assessment of the physical conditions of wildland firefighters in Chile.

In 2020, Herrera was awarded a Fulbright scholarship to pursue doctoral studies in the United States, which he is currently undertaking in California alongside his family. Herrera's academic goal is to develop applied research that contributes to improving the health and safety conditions of workers exposed to extreme environments, and to help prevent illnesses associated with occupational overload in the context of climate extremes.

From a young age, **Shyloh van Delft** was captivated by the natural world, developing a particular fascination with birds. Alongside this, her strong sense of community and respect for fire led her to join a local volunteer fire department as a teenager, where she served for several years before beginning her undergraduate studies. Van Delft pursued a bachelor's degree in northern environmental and conservation sciences through a joint program offered by the University of Alberta and Yukon University.

Now a master's student, van Delft continues her studies remotely from her home in Canada's Yukon Territory through the same academic partnership. Her research, in collaboration with Yukon Wildland Fire Management, Ta'an Kwäch'än Council, Kwanlin Dün First Nation, and other partners, explores how wildfire mitigation strategies affect wildlife and ecosystems in the Yukon's boreal forest. Specifically, van Delft is investigating how tree cavity-using species respond in different ways to forest fuel reduction treatments such as FireSmart™, shelterwood, and partial retention harvesting.

Van Delft's research aims to advance understanding of how wildfire mitigation strategies influence northern boreal ecosystems and seeks to inform wildfire risk reduction planning that safeguards communities while supporting long-term environmental stewardship and ecological resilience.


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BUILDING CAPACITY

WORKSHOPS HELP AGENCY ADMINISTRATORS MASTER PRESCRIBED BURNS

BY ERIN MYERS AND STEVEN MILLER

The U.S. Department of Agriculture Forest Service has ambitious goals: to treat an additional two million acres of hazardous fuels on national forests and grasslands annually; and to support partners by treating an additional three million acres of hazardous fuels annually on other federal, state, tribal and private lands.

To achieve these goals, the use of prescribed fire needs to expand significantly; an increase in prescribed fire is dependent on growing the workforce capacity. Agency administrator workshops are one way to expand that capacity.

The benefits of experiential learning (learning by doing) have long been recognized by the wildland fire community. In wildland fire in the United States, this is best exemplified by the position task book system of training; trainees are assigned a book of the many tasks necessary to be fully successful in a role, and they perform those functions under the watchful eye of a fully qualified mentor. Experiential learning is one of the quickest methods to expand the capability of the workforce.

The desire to increase workforce capacity through experiential learning led to the establishment of the National Interagency Prescribed Fire Training Center (Center) in 1998. The Center's mission is to maintain a national interagency center of excellence for prescribed fire, with an emphasis on actual field experience, to increase skills and knowledge and to build confidence in the application of prescribed fire.

Based in Tallahassee, Florida, the Center originally focused on actual prescribed burning qualifications through 20-day field sessions. During those 20-day trainings, participants traveled to several remote sites to take advantage of prescribed burning and learning opportunities with a variety of agencies, fuel types, and challenges such as the wildland-urban interface. The training locations were in areas where hosts had well-established burn programs with broad prescription windows and high levels of interagency cooperation.

In 2002, the Center began hosting workshops on prescribed fire specifically designed for agency administrators to develop knowledge, skills and confidence in oversight of a prescribed fire program. An agency administrator is defined by the U.S. National Wildfire Coordinating Group as "the official with the delegated authority, responsibility, and qualifications for decision making on incidents or prescribed fires within a particular administrative unit. The managing officer of an agency, division thereof, or jurisdiction having statutory responsibility for incident mitigation and management." Examples of agency administrators are federal line officers, state forest officers / delegates or fire managers, tribal chairpersons, fire chiefs, police chief, sheriffs, mayors or county representatives.

Regarding wildland fire management, either prescribed fire or fire suppression, the agency administrator is the responsible person representing a particular agency. With prescribed burning the agency administrator has administrative responsibility and delegates the

> **"I strongly believe this should be REQUIRED for new line officers in the USFS within the first two years. The mix of hands on, situational, and classroom learning really made this a dynamic and effective course to learn more about both [prescribed burns] and the role of the [agency administrators] in [prescribed burns]."**

Participants in an agency administrator workshop about to ignite the prescribed fire, some for the first time, in Missoula, Montana, in May 2025. The workshops help the U.S. Department of Agriculture Forest Service reach its goal of expanding use of prescribed fire. Photo courtesy of the National Interagency Prescribed Fire Training Center.

> **"I recognize that communication between line, fuels and the rest of the district is critical to success."**

responsibility of technical fire operations to the burn boss. Agency administrators must be prepared to make critical and informed wildland fire management decisions related to land and assets under their span of authority.

Prior to 2022, the Center's activities were primarily in the Southeastern United States and included two agency administrator workshops annually. The 2022 National Prescribed Fire Review called for the Center to expand westward by January 2023. The agency administrator workshop in Missoula, Montana, May 1-7, 2025, was the third session held in the western United States. Other workshops were in Bend, Oregon, in May 2024, and Albuquerque, New Mexico, in October 2024.

Workshop participants are selected from numerous agencies across the United States including the Forest Service, National Park Service, Fish and Wildlife Service, Bureau of Indian Affairs, Bureau of Land Management, and Department of Defense as well as partners such as states and The Nature Conservancy, a global non-profit dedicated to conserving land and water.

The workshops help agency administrators develop the core competencies necessary to hold decision-making authority for wildfires or prescribed fires. Participants learn about:

- Risk-informed decision making.
- Wildfire response and incident management processes.
- Wildland Fire Decision Support System / Integrated Fuel Treatment Decision Support System and other decision support tools.
- Fuels management and prescribed fire processes.
- Fire prevention, mitigation, and education processes.
- Social, political, economic, and environmental impacts of wildland fire management activities, including prescribed fire.
- Effective communication.
- Collaboration with partners and stakeholders.
- Fiscal management.

"I learned the importance of Leader's Intent to support and grow my fire program."

(According to the National Wildfire Coordinating Group, the leader's intent is a statement that outlines what people must know to be successful for a given assignment including tasks, purpose and end state – how things should look when successful completed.)

The objective of agency administrator workshops is that upon completion the agency administrator will:

- Demonstrate the knowledge and confidence necessary to grow or sustain a safe and successful prescribed fire program.
- Demonstrate an understanding of national policy, agency administrator responsibility, accountability, and authority to approve all prescribed fire management actions.
- Identify the principles, policies and procedures to effectively provide oversight of a prescribed fire management program.

A key strength of the training program is the instructors' proficiency with prescribed burning. The cadre of instructors includes agency administrators and prescribed fire practitioners, who, as a group, have more than 550 years of experience in every aspect of a successful prescribed fire program.

The cadre – composed of federal employees, cooperators and private consultants – is organized into two groups: one focuses on development of exercises, burns, and logistics; the other concentrates on providing mentoring and presentations. The groups interact seamlessly to coordinate instruction and facilitate learning moments as they arise. (A cooperator is defined by the National Fire Coordinating Group as a federal, tribal, state or local agency that participates with other agencies in planning and conducting fire or emergency management projects and activities.)

An important element of the agency administrator workshop is the opportunity for mentoring between the cadre and the participants. Mentoring is a critical consideration in all aspects of the workshop including the formation of the agenda, the selection of the instructors and even the selection of the facilities. The instructors are fully committed to this concept and have arranged for every opportunity to stay involved with the participants including at meals, breaks and social hours. Small group formation is continually reorganized to maximize one-on-one mentoring opportunities and peer-to-peer interaction. The overall design of the workshop maximizes the opportunity for mentoring.

The curriculum is designed around several foundational elements including risk management, overcoming constraints, effective internal and external communication, protocol and policy on escapes, burning in the wildland-urban interface, building successful programs, air quality and smoke, liability, land management plans, fire management plans, burn plans, landscape wide application, program monitoring, review and approval responsibility, accountability, oversight and developing partnerships. While the curriculum is consistent, it is also highly adaptable. On the first day of the workshop, participants provide their expectations for the workshop and the instructors then tailor agenda items to the expectations. Each workshop includes two prescribed burn days. Each burn day has a specific set of objectives designed to give agency administrators hands-on experience. The objectives of the first burn day are to provide the participants with a better

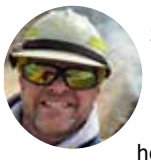
A classroom presentation during the agency administrator workshop in Missoula, Montana, about how to build an action plan. Photo courtesy of the National Interagency Prescribed Fire Training Center.

Participants igniting the burn unit under the supervision of instructors / mentors at the agency administrator workshop in Missoula, Montana in May. Photo courtesy of the National Interagency Prescribed Fire Training Center.

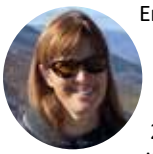
understanding of the burn-day organization and the roles and responsibilities of the agency administrator, burn boss, and firing boss. The objectives of the second burn day allow participants to experience simulated pressures, time constraints and the need for flexibility that employees experience on every burn day. This is achieved by allowing the participants to plan, organize and implement a small, prescribed fire with minimal input from the host unit or instructors.

Attrition at the agency administrator and burn boss levels leads to loss of institutional knowledge and experience. Land-management agencies need a system for transferring institutional knowledge and experience to new agency administrators and less experienced burn bosses, especially with respect to complexity analysis and burn-plan review processes. The workshops are one tool to facilitate the transfer of that knowledge and experience.

Workshops are planned for Oct. 30-Nov. 4 in Destin, Florida; Jan. 29-Feb. 3 in Florida (location TBD); and May 14-19 in Redding, California.

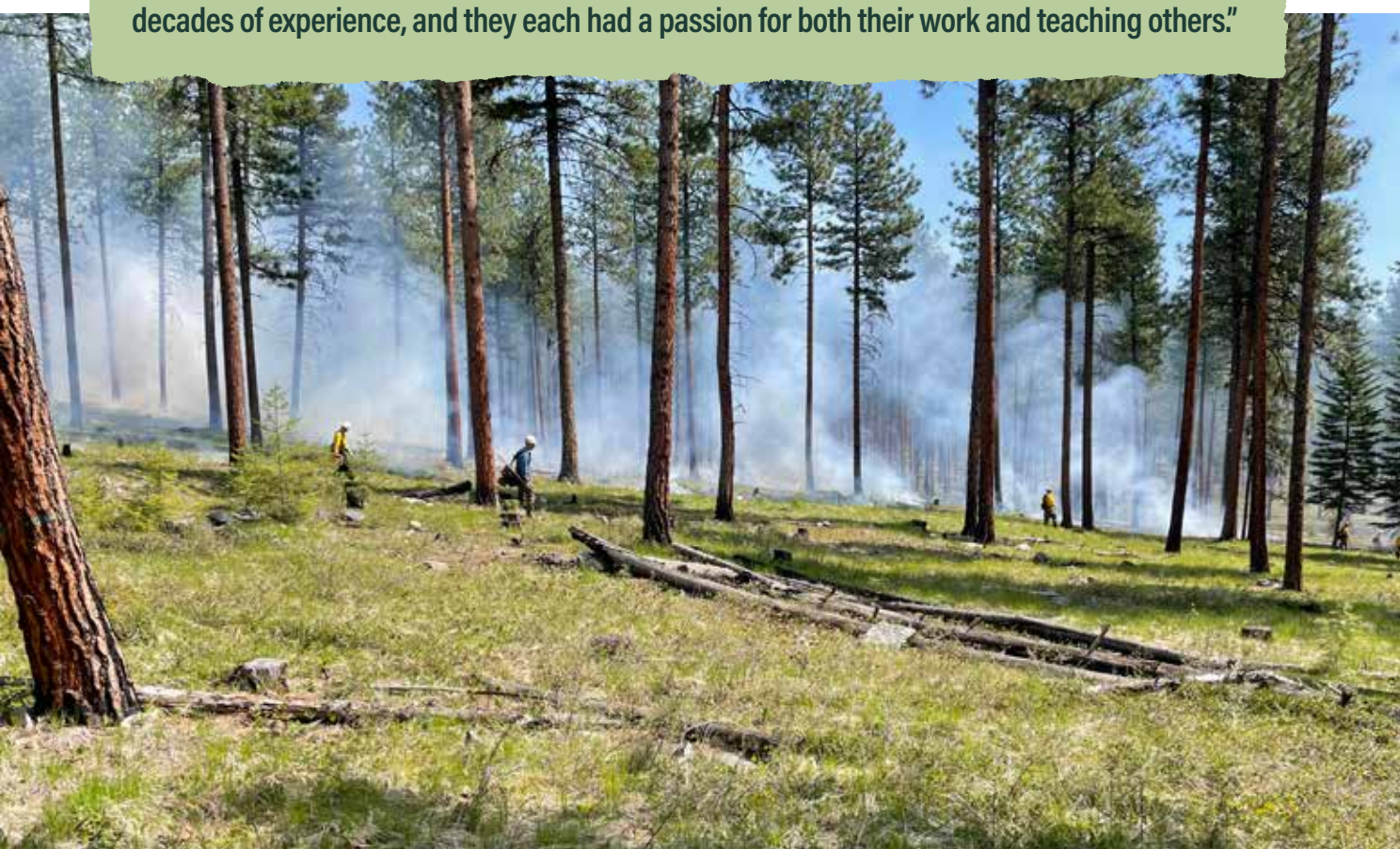


Steve Miller served on the board of directors for IAWF from 2017 through 2023, serving as vice president in 2022. Miller has worked in fire since joining the Texas Forest Service in 1985. Since 2018, he has been employed by the US Forest Service, as the director of fire and aviation management for the eastern region. Prior to joining the USFS, Miller spent 31 years working for the State of Florida. He has a passion for prescribed fire and teaching, having served as adjunct instructor for the University of Florida and the University of Wisconsin Stevens Point.



Erin Myers joined the National Interagency Prescribed Fire Training Center cadre in 2023, after completing the agency administrator workshop in 2022. Myers became a Florida state certified burner in 2005 and primarily assisted private landowners with prescribed fire planning until 2020, when she became a refuge manager with the US Fish and Wildlife Service National Wildlife Refuge System in Southwest Florida. In 2018, Myers started training to become a public information officer for wildfire and prescribed fire. She works closely with the U.S. Fish and Wildlife Service Zone 3 fire team in South Florida, assisting with prescribed burning on multiple refuges as either a public information officer, FFT2 or agency administrator. Myers loves sharing information about the benefits of prescribed fire on the landscape with partners and communities.

"It was obvious why each cadre member was selected. They were experts in their field with decades of experience, and they each had a passion for both their work and teaching others."



IAWF COMMITS TO SUPPORT MENTAL HEALTH AND WELLBEING

POSITION STATEMENT OUTLINES ACTIONS ASSOCIATION WILL TAKE TO INCREASE KNOWLEDGE AND CARE

BY RICH MCCREA

The International Association of Wildland Fire has committed to promoting health and wellbeing for wildland fire practitioners, their families and support communities.

The IAWF board has approved a position paper titled *IAWF Position Statement: Health & Wellbeing in the Wildland Fire Sector*, which outlines actions the association will take to ensure everyone involved in the wildland fire sector is aware of mental health challenges and the available support.

The paper outlines the challenges fire practitioners often face, including remote work locations, long assignments, and extended work hours, which contribute to fatigue and high rates of stress, trauma, physical and mental injury.

According to the paper, research indicates that wildland fire practitioners are often repeated victims of direct physical, mental, psychosocial impacts, and injuries. Health and wellbeing can be improved through medical treatments as well as cultural, social, and environmental interventions, the paper says.

The paper defines health and wellbeing in the broadest terms to include cultural, social, social, ecological, physical, mental, and professional wellbeing. In the paper, the term wildland fire practitioners refers broadly to wildland fire managers, firefighters, dispatchers, aviators, land managers, scientists, agency, non-government personnel, volunteers, and contractors.

The paper, which was accepted and endorsed by the IAWF board, was written for the association by members of the diversity and inclusivity committee Phillipa McCormack, DaRon Shavers, and David Riera.

"In publishing this position paper, the IAWF has acknowledged the importance of mental health and wellbeing for the global wildland fire community," McCormack says.

"Some health and wellbeing considerations for this [wildland fire] community are unique, but many are shared with other emergency and land management sectors, and their families and supporters. We hope that this position paper starts – and helps to maintain – critically important conversations about health and wellbeing across the sector and around the world."

The IAWF will officially launch the paper at the 17th International Wildland Fire Safety Summit and 7th Human Dimensions of Wildland Fire Conference in Calgary, Alberta, in October.

IAWF president Trevor Howard notes that all roles within the wildland fire sector are demanding.

"As climate and fire regimes change, so too will the operational tempo and effects," Howard said. "While individual, cultural and organizational approaches to wellbeing vary, fundamentally people matter. This paper is a call to action at every level."

IMPACTS OF WILDLAND FIRE

The paper highlights key research findings about mental health among wildland fire practitioners and recommends actions (see pages 19 and 20) for improving health and wellbeing in the wildland fire sector, joining global efforts for urgent change.

Already, the IAWF advocates for positive health and wellbeing by supporting efforts to influence governments, employers, and policymakers to implement practices that align with increased health

and wellbeing among wildland fire practitioners.

The position paper notes that there are many direct and indirect impacts of wildland fire fighting on aspects of health and wellbeing. During fire assignments fire practitioners may be repeatedly exposed to sleep deprivation, job stress, high outdoor temperatures, environmental hazards of rugged terrain, and extreme fire behavior. Impacts on wellbeing can include mental, emotional, cultural and psychosocial stress and injuries from fire, smoke, and heat.

The paper also points to research that indicates employment in wildland fire can limit the availability of alternative job prospects because of the operational tempo of deployments or chronic fire-related injuries. Stress from fire assignments may trigger relationship breakdowns linked to post-traumatic stress and substance abuse. Financial and economic consequences sometimes arise, such as lost work time resulting from injuries, and long-term expenses associated with gradual health impacts.

According to the paper, cultural impacts of working in the wildland fire sector can include systemic harm from culturally unsafe workplaces and environments – conditions that harm First Nations' and culturally and linguistically diverse peoples' cultural, spiritual, emotional and physical health. Research cited in the paper shows that wildland fires can have various effects on communities, including evacuations, loss of homes, property, significant sites, aspects of culture, social connections, and livelihoods, which impact health and wellbeing of residents and fire practitioners.

PATHWAYS FOR CHANGE

The paper indicates that health and wellbeing in the wildland fire sector can be improved through coordinated efforts at **individual**, **workplace**, and **systemic** levels, and provides examples of tools in each category.

- Pathways and actions to enhance health and wellbeing start with **individual** responsibility for health, fitness, readiness, recovery and resilience, action plans, and peer-to-peer mentoring.
- **Workplace** pathways can include cultural competency and cultural safety training, along with mandatory emotional intelligence programs for team leaders.
- **Systemic** actions may include researching and identifying pathways for reform to legislation, regulations and policy. People will only be able to use these tools and mechanisms if the financial, emotional and cultural barriers to accessing and using them are removed.

CONTRIBUTING FACTORS

The paper points out that research on wildland fire practitioners' health is limited, particularly around long-term risks such as cancer and cardiovascular disease. Limited research may be due to fire practitioners rarely seeking help, particularly for mental health, despite facing significant physical and psychological stress. According to the paper and previous research, organizational culture and fear of appearing weak contribute to reluctance, leading to issues such as substance abuse, burnout, and disproportionately higher suicide rates among people who work in the wildland fire sector.

The mental-health paper references previous IAWF position papers on climate change and prescribed fire, and notes that climate change is another important factor impacting wildland fire practitioners. Wildfires are becoming larger, more frequent and destructive, in large part due to climate change. Climate change is increasing the length and severity of fire seasons, which will require fire crews to be on call or deployed for longer periods during the fire season. According to the climate-change paper, these long deployments "reduce the time that wildland fire practitioners have to rest, recover and heal from long and intense fire campaigns." Climate change worsens health risks, with wildfire smoke increasingly aggravating conditions like asthma and lung disease.

CALL TO ACTION

The *IAWF Position Statement: Health & Wellbeing in the Wildland Fire Sector* is a call to action for organizations that employ wildland fire practitioners to encourage them to take steps to increase health and wellbeing. The paper notes a need for these entities to "commit substantial resources and make a sustained effort to provide health-related education, training and other interventions to contribute enhanced wellbeing, greater resilience, and long-term support for those experiencing injury and trauma.

"Existing efforts have not consistently and successfully mitigated the harm experienced by many people and communities in the wildland fire sector," the paper says. "As climate changes and wildfire events expand in their scale, scope and duration, these are challenges that the IAWF have identified as critically important and worthy of greater commitment and effort."

Fire practitioners and agencies often encounter financial, emotional and cultural barriers when working to improve health and wellbeing. Removing these obstacles and ensuring practical access to resources is essential for improving outcomes in the wildland fire sector.

The paper explains the IAWF's vision, "to seek and promote and contribute to the mental, cultural, physical, and emotional safety of wildland fire practitioners worldwide; and to foster meaningful connections within and across wildland fire practitioner communities, to help build resilience and sustain health and wellbeing."

The IAWF is committed to promoting opportunities for research, knowledge and experience sharing. To achieve this vision, the IAWF proposes four actions

IAWF ACTIONS

1. Understand the range of stressors affecting wildland fire practitioners, including the compounding and interacting direct and indirect effects of those stressors on health, wellbeing and 'connectedness.

2. Foster safety, tolerance and diversity in all its forms, along with open communication about health and wellbeing for wildland fire practitioners across countries, cultures and contexts.

3. Promote a culture of active support for wildland fire practitioners to manage these stressors and build and maintain physical, emotional, cultural and other forms of health and wellbeing.

4. Develop and communicate holistic and nuanced messages about health and wellbeing for wildland fire practitioners; including to policymakers, fire agencies, fire practitioners, and non-government organizations associated with wildland fire, including those in support, communication and service provision roles.

In addition, the IAWF has committed to five key actions the association and its members can implement immediately to increase the awareness of health and wellbeing, including building partnerships, advocating for better practices, and creating safe spaces for conversations and mentoring at IAWF events.

Enhancing the health and wellbeing of wildland fire practitioners will contribute to sustaining a resilient and highly qualified workforce and will benefit communities and cultures.

The IAWF position paper *Health & Wellbeing in the Wildland Fire Sector* is available on the IAWF website at https://www.iawfonline.org/issue-papers/.

IAWF COMMITMENTS

1. Advocate for better understanding and responses to the full range of stressors influencing health and wellbeing;
2. Create and cultivate safe spaces for conversation, empowerment, connection and mentoring at IAWF-supported events and in IAWF programs;
3. Partner with agencies and other organizations to promote the importance of health and wellbeing;
4. Advocate for improvements in policies, practices, workplace cultures and norms that negatively affect health and wellbeing of the wildland fire community, across the world;
5. Investigate new partnerships to facilitate access to new resources, guidance and support for members of the wildland fire sector and their families, communities and environments.

During his career, Rich McCrea worked 32 years in fire management and forestry with several federal agencies. Outfitted with a degree in forestry, McCrea started his career as a seasonal employee with the US Forest Service as a forestry technician and member of the Helena Interagency Hotshot Crew, then moved on to permanent positions with the US Department of Interior, Bureau of Indian Affairs, as a forester and fire management officer at three different field locations, and at the National Interagency Fire Center. McCrea enjoys hiking, camping, fine books, and writing and research about historical wildfires.

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COPING SKILLS FOR OVERWHELM

BY BEQUI LIVINGSTON

Have you ever found yourself on the fireline, feeling overwhelmed? Or maybe you felt fully in control, hyped up with adrenaline. Your body and brain may not have been in alignment, but you charged on. Perhaps you've felt angry, or as if you wanted to run away, or your brain was foggy, or even a bit lethargic and physically unable to keep up. Do any of these scenarios sound familiar? Now, recall a traumatic fire event in which you were involved; how did you respond?

I've written a lot about the autonomic nervous system and the importance of understanding its involvement in wildland fire. Just being a wildland firefighter puts people at a higher risk for nervous system overwhelm and dysregulation, especially with the unprecedented wildland fire seasons we're experiencing. That's why it's important to understand your default state of survival, and how best to mitigate and manage when your autonomic nervous system gets overwhelmed. Understanding how you respond under duress and when you're overwhelmed can be essential to your health and wellness, and especially to your safety on the fireline.

I remember the 1982 fire season; I was assigned to a wildfire in the Capitan Mountains in New Mexico. It was a lightning fire and several members of the Smokey Bear Hotshot crew and the Capitan Helitack crew I was on were flown into the fire. We had dug fireline for most of the day, finally bedding down about 2200 hours. We had only our sleeping bags, and I was the only female.

As usual, I could not go right to sleep. Somehow, I had convinced myself that a bear was going to come into our sleeping area because we had seen fresh bear scat. About midnight, I started hearing bushes rattling and twigs breaking and was convinced that the bear was coming to get me.

I lay in my sleeping bag, frozen in fear. Then came the growls; they seemed to get closer and louder, and I lay frozen. I started whispering to my crew mates, "Dan, is that you, do you hear that?" Nothing. Then, "Brian, do you hear that?" I went around to several others but there were no replies. After about 30 minutes, the growls subsided, but I still lay awake, my heart beating, my palms sweaty. The next morning it became apparent that the growling had been one of the crewmembers snoring loudly. I had been frozen in the survival response of hypoarousal or dorsal vagal parasympathetic shutdown; my nervous system was trying to keep me safe and out of harm's way.

When we're stable and not dealing with the chaos and trauma of wildfire, our autonomic nervous system falls into a normal range within our window of tolerance. The window of tolerance refers to the optimal zone of emotional and physiological arousal when a person can function effectively while managing stress; it's where we feel functional, clarity, safety, stability, grounded, and able to make decisions. If you were to use a stoplight as an analogy, the window of tolerance would be green; it's the place we want to practice being, where we feel

that we can deal with the chaos and bounce back from adversity. When trauma and stress shrink your window of tolerance, it doesn't take much to throw you off balance, to become overwhelmed and dysregulated. Everyone's window of tolerance is different, and factors that can affect it include past trauma, neurobiology, and social support.

When we are stressed or overwhelmed, our window of tolerance shrinks, activating the sympathetic survival mode, referred to as hyperarousal, or red, meaning STOP; we feel activated, triggered, want to fight or flee. Red is where we are so activated or anxious that we can't make rational decisions because our pre-frontal cortex (cognitive brain) has gone offline. Red is a place of anxiety, hyperarousal, hypersensitivity, and overwhelm. Our stress hormones are in overdrive, and our system wants to keep us safe. Yet, this state can be detrimental and unsafe in a fire situation.

Then there's the parasympathetic dorsal vagal survival mode, also known as hypoarousal, where we tend to freeze, shut down and collapse, often unable to move or speak, and a dangerous place to be in a fast-moving wildfire. Hypoarousal is where you might feel spaced out and even numb; it's often where depression occurs because our nervous system is trying to slow down to keep us safe.

These reactions are not something we choose, they just take over, leaving us little control, other than learning to manage and mitigate their effects. Once you begin to pay attention, being mindful of how you respond to trauma and stress, you will be better able to handle different nervous system states. Awareness is the first step. Step two would be paying attention to where you feel these responses in your body. What does anger feel like in your body, and where do you feel it? What does flight mode feel in your body and where is it located? What about freeze and shut down? Where do you notice it in your body?

Once we begin to recognize our unique survival default state, we can work with our nervous system, helping it become stronger and more resilient for when danger happens. The nervous system becomes your personal warning system. Most importantly, you want to begin practicing coping techniques and tools before you are dealing with chaos; doing so makes it easier to defer to the skills when your body and brain are in survival mode. Everyone's coping skills and tools will be different, so please find what works for you and throw out the rest.

Over time we can refine coping skills to better help us deal with the overwhelm. Tools include the following:

HYPOAROUSAL AND OVERWHELM

When you are activated in fight-flight and your system is overwhelmed, you want to slow and calm things.

- Grounding and anchoring; Practice using your senses:
    - Feel your feet make contact with the ground, maybe your back being supported and your behind in a seat. Focus your attention on the sensation of touch.
    - Notice what you see, hear, taste, smell and touch – colors, shapes or textures; feel your clothes on your skin.
- Breath work is one of the quickest and best ways to calm an overwhelmed nervous system. Start by noticing your breath without trying to change it. Then, try one of these:
    - Calming breaths: Inhale slowly through your nose, pause at the top and then exhale out your mouth with a sigh, letting it all go. Repeat three to four times then come back to your normal breath.
    - Box breathing: Inhale through your nose to the count of four; pause at the top for four; exhale through the nose for four; and pause at the bottom for four, as if you're drawing a box with your breath. Repeat three to four times and come back to your normal breathing.
    - 4-7-8 breathing: Inhale slowly through your nose for four counts, hold and pause for seven counts, then slowly exhale through your mouth, as if you're breathing out through a straw for eight counts. Repeat three to four times and come back to your normal breathing. (If you must abbreviate to a lower count, such as 3-6-7, that's fine.)

- Mantra / intention: Saying to yourself, "I am here now, and I am safe."
- Mindfulness: Becoming fully present with everything you are experiencing, even when it's uncomfortable to do so. If your thoughts distract you, bring your focus back to your breath, and feel your body become anchored and grounded. Returning back to the breath and body, over and over again, will help keep you present in the moment.

HYPERAROUSAL, FREEZE AND SHUTDOWN

When you feel frozen in place, as if you can't move, can't breathe or make a decision, you need to activate your nervous system.

- Splash cold water on your face, plunge your head into cold water, or hold on to a cold object such as a cold can or piece of ice.
- Move your body; do some jumping jacks, push-ups or walk quickly to get your blood flowing and your body engaged.

Grounding and anchoring practices

- Feel your feet make contact with the ground, maybe your back being supported and your behind in a seat. Focus your attention on the sensation of touch.
- Notice what you see, hear, taste, smell and touch – colors, shapes or textures; feel your clothes on your skin.
- Breathwork: use any of the breathing exercises mentioned above.
- Mindfulness: become fully aware of your nervous system state and practice tools to re-activate it.
- Healing touch or self-soothing practices:
  - Butterfly hug: put opposite hands on your shoulders, as if you're hugging yourself and begin gently tapping, alternating between right and left.
  - Self-havening: slowly rub your hand down your arms and wring your hands slowly.
  - Mindful movement: walk slowly; place each foot in front of the other and pay attention to how it feels.
- Mantra or intention: Kind words you need to hear, that you can tell yourself, for example, "I am safe in this moment and doing the best I can."

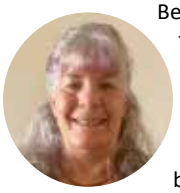
Other body-based / somatic coping skills and tools:

- Massage
- Chiropractic
- Cranio-sacral massage: a gentle hands-on massage that helps release tension in the craniosacral region, which includes the skull, spine and sacrum, helping move the cerebral fluid through the spine, helping to calm the nervous system.
- Acupuncture
- Yoga/ Tai Chi / Qigong

Brain-based coping skills:

- Neurofeedback: a type of therapy that teaches clients how to regulate their brainwave activity, potentially helping reduce symptoms related to nervous system overwhelm and other conditions.
- Trauma-informed therapy (personal and group)
- Psychoeducation: Learn everything you can about the nervous system, especially as it relates to first responders.
- Eye Movement Desensitization and Reprocessing (by a highly trained EMDR therapist).

There are many other tools; only you can find the techniques that work best for you.



Bequi Livingston was the first woman recruited by the New Mexico-based Smokey Bear Hotshots for its elite wildland firefighting crew. Livingston was the regional wildfire operations health and safety specialist for the U.S. Forest Service in Albuquerque, New Mexico. Contact her at bequilivingstonfirefit@msn.com

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RECOMMENDATIONS FOR CHANGE

THE WAY AHEAD FOR A FIRE-LITERATE AND FIRE-ADAPTED EUROPE

BY TIAGO OLIVEIRA

A new era of wildfire mitigation and prevention in the European Union has been defined by two new wide-ranging reports, with the added support of a new global agreement with similar objectives.

- A report by the European Academies Science Advisory Board presented in Brussels on May 19 calls for an integrated European Union framework for landscape fire risk governance and the prioritisation of prevention.
- The European Academies report followed the publication in April of a proposal by Firelogue – a coalition of research projects – for an integrated wildfire risk management strategy.
- And on June 17, G7 leaders and guests meeting in Canada signed the Kananaskis Wildfire Charter, endorsing that nations adopt a whole-of-society approach to wildland fire, focus on prevention, leverage research, and build shared capacity to mitigate and respond,

The European Academies report, *Changing Wildfires: Policy Options for a Fire-Literate and Fire-adapted Europe,* synthesises state-of-the-art fire science and argues that forest ecosystems and European citizens will be exposed soon to a growing wildfire risk. The report recommends the articulation of policies, actively managing forests, and educating and engaging communities.

Already wildfires in the European Union burn, on average, half a million hectares yearly – almost twice the size of Luxembourg. In 2025, almost 1 million hectares burned.

Worked on by 23 scientists nominated by their respective national science academies, the report highlights the complex drivers behind the surge in wildfire risk.

Amplified by climate change, the drivers tie down to rural depopulation and land use changes. As droughts and declining summer rainfall are predicted to double the fire hazard by 2100, rural abandonment of farmland and unmanaged vegetation growth have created vast landscapes of flammable biomass.

The report notes the firefighting trap or paradox – the over-reliance on fire suppression rather than fuels and land management exacerbates future fires – argues that fire suppression alone is not sufficient, and questions the efficacy of EU policies for their overwhelming focus on fire suppression and emergency response.

SCAN TO VIEW REPORT

The report presents European political bodies with eight recommendations:

1. Invest in integrated wildfire risk reduction, including prescribed burning and fuel management.
2. Implement nature-based solutions such as grazing and native species reforestation.
3. Embrace the role of fire allowing planned burns to maintain ecological balance.
4. Invest in education and communication to increase "fire literacy" and preparedness.
5. Invest in landscape management to reduce vulnerability, design and maintain resilient landscape that reduces wildfire risks.
6. Harmonise sectoral policies across agriculture, environment, and urban development to reduce conflicts and risks.
7. Promote compact urban development to limit wildland-urban interface expansion.
8. Encourage sustainable private land management to help landowners adopt fire resilient practices.

While the Mediterranean remains Europe's highest-risk region, the report warns that a continental fire crisis is brewing, and Alpine and Boreal regions must also prepare for a new era of fire.

"The changing regime with larger, more intense blazes is driven not only by weather, but also by structural socio-ecological shifts," said Orsolya Valkó, co-chair of the European Academies' Science Advisory Council's wildfires working group, in a statement in May.

"Many new areas, such as Central Europe and rapidly warming mountainous areas, will probably be exposed to severe fire weather. This marks a fundamental shift with major consequences for environmental and public safety."

Firelogue – the coalition of research projects – supports wider calls for an integrated European wildfire risk management strategy.

"Following the example of Portugal, we propose that the creation of a strategy should include some key elements such as the creation of an Inter-agency at the EU level, to work transversally with the various agencies and European Commission directorates (DGs) to operationalise the implementation of inter-agency articulation and coordination, to avoid overlaps and gaps," the Firelogue report says.

"Also, several of the measures proposed in this document concern the activities of some of these agencies including, for example [Directorate-General Environment, Directorate-General Climate, Directorate-General European Civil Protection and Humanitarian Aid Operations, Directorate-General for Agriculture and Rural Development, Directorate-General for Structural Reform Support]. In line with this, we also advocate the implementation of a European Wildfire Management Directive as a regulatory framework to guide wildfire risk management activities."

A prescribed burn in a maritime pine stand in central Portugal at the Malcata Nature Area in 2010. Photo by Tiago Oliveira.

The Kananaskis Wildfire Charter means that G7 nations – Canada, France, Germany, Italy, Japan, the United Kingdom and the United States – in addition to guest participants Australia, Mexico, India, the Republic of Korea, and South Africa, will move to integrated fire management and high hopes expressed by the G7 for the United Nations Global Fire Management Hub initiative, which is expected to play a pivotal role in fire-era diplomacy.

For the European Union in particular, the way forward is about interoperability, incident command system-based qualifications, common procedures and operational standards, and also the use of knowledge and science to better determine expansion of fire use as a tool in sustainable forest management, nature-based solutions, and Indigenous land management practices including cultural fire risk reduction measures around communities, buildings, and Infrastructure"

To be fire-literate and fire-adapted in Europe, as recommended in the May 19 report, challenges institutions and politicians. The 2023 Landscape Fire Governance Framework, which brings together governments, businesses, academia, and members of civil society to develop and implement balanced and technically supported solutions to landscape fire management, might be helpful for European institutions and decision makers to improve cooperation among civil protection and forest and conservation agendas and organizations, assuring that the pursued objectives are tackled and best practices are adopted.

Tiago Oliveira is a PhD and forest engineer with 30 years of experience in national and international activities specialized in the topics of wildland fire risk management and governance. Oliveria was appointed by the prime minister in the aftermath of the 2017 wildfire season to lead the creation of the Integrated Rural Fire Management System in Portugal. He has been chairman of the board of the Portuguese Agency for Integrated Rural Fire Management since January 2019 and is the former head of the Department of Innovation and Forestry Development (2016-2017) at The Navigator Company. Oliveria was head of forest protection, responsible for fire prevention and suppression operational programs and R&D projects, from 2008 to 2016. Oliveria is has been a member of the IAWF board since 2023.

SCAN TO VIEW THE UNITED NATIONS GLOBAL FIRE MANAGEMENT HUB INITIATIVE

Building a handtool fire line and checking its effectiviness in Northen Portugal in 2016.

Two medium engines from a private wildland firefighting company, holding a line during the 2015 fire season near Porto in Portugal.

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BORN OF THE FLAMES

FOUNDING LEBANON'S AKKAR TRAIL FIREFIGHTING TEAM

Members of the Akkar Trail team pause for a quick enthusiastic selfie in from of their two vehicles, "Shouh" and "Lzab" before tackling a fire near Ain Yaacoub that threatened the Bezbina Nature Reserve. Despite steep, rugged terrain and strong winds, the team managed to save the reserve and halt forward progression of the fire after a five-hour battle. Photos courtesy of the Akkar Trail Wildland Firefighting Team.

BY KHALED TALEB

It was a typical Sunday – Aug. 22, 2020. I had just wrapped up a hiking trip and returned home early, expecting a quiet afternoon. But within minutes, the news spread like wildfire: A massive blaze had broken out in Wadi Haql al-Khirbeh, quickly reaching one of the most important cedar forests in our Lebanese village, home also to centuries-old juniper trees.

I rushed to our group chat on WhatsApp and typed: "I'm heading toward the fire. Whoever wants to join me, meet me in front of our association's center – Akkar Trail."

Akkar Trail is an environmental non-governmental organization dedicated to ecotourism, mountain trails, and biodiversity documentation.

In just minutes, four volunteers from our mountain guide team assembled, carrying simple tools we usually used for trail maintenance: a pickaxe, a shovel, a pruning saw, and backpacks filled with water and snacks.

We hurried toward the upper reaches of the village. The closer we got, the thicker and darker the smoke became, tinged with a bronze hue. That's when we realized the extent of the unfolding disaster, reminiscent of the great fire of 2010 that had burned for five days.

Once at the scene, I launched my drone and began documenting and scouting the fire from above. In less than three hours, the fire had consumed about 100 hectares, racing down the slopes from 1,700 meters to 1,000 meters at terrifying speed.

Though we had no prior firefighting training, we decided to act. Using our basic tools, we dug a firebreak and started fighting the blaze; against all odds, we managed to contain a large portion of it. Meanwhile, the only civil defense truck in the area – an old tanker – was unable to access the rugged terrain, limiting its role to offloading water from afar.

We spent two full days battling the flames using agricultural tools, pickup trucks, tractors, and pesticide sprayers. Eventually, we managed to control the fire, but the damage was significant.

The flames had devoured our memories – those ancient trees that had stood by our sides on every hike, silent companions we had carved our names into over the years.

In moments like these, we were reminded of a cherished Lebanese village tradition: Al-Awneh – the collective mobilization of residents to help in times of crisis, rooted in solidarity and communal responsibility.

That spirit gave us the courage to take the next step: the founding of the Akkar Trail Forest Firefighting Team.

We called on friends and supporters to help us raise funds to buy and equip a small, agile firefighting vehicle. To our great surprise, the response was overwhelming – we raised nearly $20,000. With it, we purchased a used Nissan Titan and locally outfitted it with basic equipment. Despite the vehicle's simplicity, it proved to be remarkably effective in rough terrain. A second vehicle followed the next year.

We named the two trucks Lazzab (after the juniper tree) and Shouh (after the fir tree) – both iconic symbols of Akkar's forests.

Over the next four fire seasons, our team evolved from a group of amateurs into a respected, professional force. What fueled that transformation? Passion, commitment, continuous learning, adoption of international good practices, modern technology, and a rigorous process of reviewing and learning from past mistakes through annual reports.

With an annual budget of just $15,000, we've carried out more than 220 firefighting missions – both in Akkar and beyond – responding to every call for help.

During mid-2025, the Akkar Trail team headed to Syria amidst an unprecedented environmental disaster to assist in fighting devastating wildfires that ravaged thousands of hectares of forests and farmland. Despite limited resources and the setback of the main response vehicles out of service, the team chose to intervene out of a deep sense of humanitarian, environmental, and fraternal duty. What seemed at first like a symbolic gesture turned into a pivotal experience filled with valuable lessons, from gaining field expertise in tackling massive fires, to learning about aerial monitoring technologies, strengthening regional cooperation, and testing readiness under harsh, real-life conditions. This experience proved that learning from others and sharing the field with them is a necessity, not a luxury, and that true solidarity knows no borders. In addition to our quest for evolving the knowledge and capacity of our own team, we have also organized training camps and shared our experience with teams from across Lebanon. One of our key events was the annual forest fire training camp, inspired by the Polish Forest Camp attended by one of our members, through the invitation of our dear friend Lindon Pronto, senior fire management expert with the European Forest Institute in Germany, and *Wildfire* associate editor.

During our training camps, we met firefighting teams from all over Lebanon, including from the south. Among them were members of the Risala Scouts Association, brave responders who had paid a heavy price during the most recent Israeli aggression on Lebanon. Their ambulances were deliberately targeted – even though they were clearly marked – resulting in dozens of casualties. These were brothers who had broken bread with us, laughed with us, trained beside us – and are sadly no longer with us.

The Israeli assault has been relentless, and has been

Akkar Trail team members assisting during the 2024 wildfires in Mount Lebanon Governorate. The team has grown to around 22 volunteers; some are university students, others are agricultural engineers, and some are mechanics or paramedics — an incredible mix of specialties united by a shared love for the land and nature.

an additional driver of wildfires in the region. White phosphorus was used against civilians and forested lands, as confirmed by hundreds of photos and videos. Even after the ceasefire, Israeli drones claimed more lives – one of them a dear friend from the Lebanese Civil Defense, a passionate environmentalist who had repeatedly risked his life to fight wildfires alongside us. He belonged to no political party – just a public servant, targeted nonetheless, while doing what he did best – helping others.

Yet despite all this, our faith remains unwavering. We know we are on the right path – working to protect the forests and rich biodiversity of our region. More than that, we believe in the power of sharing this experience across Lebanon and even abroad, alongside loyal friends and partners.

We have done so much – on less than $80,000 in five years – including the purchase of vehicles, equipment, operations, and maintenance. These numbers tell a powerful story: when even limited resources are used wisely, incredible things are possible. It is no secret that there have been many development aid projects in Lebanon, including projects for capacity development for fire fighting. While a small handful of efforts have proven effective, many have wasted money on poorly planned activities and in our view have misplaced resources. We are therefore very proud to have set such a positive example and affected change in our communities even with the very limted resources at our disposal.

So here's our call to the global wildfire community:

Support those who've proven their worth.

Support those who stood their ground when everything (literally and figuratively) burned around them.

Our team's vehicles are aging and need replacement.

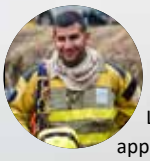
New volunteers must be recruited and trained. We need stable funding to keep going.

Yet no matter the challenges, we will stand firm.

We will fight to protect what matters.

And we will always live by our motto: “We Extinguish to Protect!”

At a painful moment, we bid farewell to our dear comrade Mahmoud Sultan, the team’s maintenance lead, who tragically passed away in a traffic accident. Mahmoud was the heart of the team, known for his generosity, quiet strength, and reassuring smile even in the most intense situations. He was always present when it mattered most — rushing to repair equipment under fire and smoke so the mission could go on safely. He helped displaced families during war, built hiking trails in the mountains, and protected the land and its people with unwavering dedication. His spirit, kindness, and laughter left a mark on everyone he met. Mahmoud’s passing is a deep loss, but his memory will live on in every trail walked, every tree saved, and every challenge overcome by the team drawing strength from his legacy. May he rest in peace, and may his loved ones find comfort. His spirit will continue to guide our path.



Khaled Taleb is founder and leader of the Akkar Trail Forest Firefighting Team and has worked as a consultant for various UN-funded projects in Lebanon. Taleb is also an environmental representative appointed by the governor of Akkar, a trail guide, an internationally award-winning photographer, and expert in Lebanese paleontology and botany. Taleb’s discoveries include the recording of new Cretaceous amber outcrops and the documentation of rare and previously unrecorded plant species in Lebanon. His love and fascination for the rich biodiversity of Lebanon is what motivated him to establish Akkar’s firefighting team dedicated to protecting nature through forest fire response and sustainable conservation.

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FORESTRY, FIRE AND ACCOUNTABILITY

THE ROLE OF THE FOREST PRACTICES BOARD IN WILDFIRE OVERSIGHT

BY NATASHA CAVERLEY AND KEITH ATKINSON

Lightning cracked over Downton Lake in the southern interior of British Columbia, Canada's most westerly province, lighting a blaze that was discovered on July 13, 2023. Worming its way through steep slopes and avalanche chutes of the Coast Mountains and Chilcotin Ranges, the wildfire crept toward homes and cabins in nearby communities. With direct attack strategies limited by terrain, heavy fuel loading and water availability, the BC Wildfire Service relied on an indirect suppression tactic – a planned ignition.

Tragically, more than 40 homes were lost to the wildfire. Residents were left wondering how this happened. Was a planned ignition necessary? Did it contribute to the losses? Three community members brought these questions to the Forest Practices Board, British Columbia's independent watchdog for forest and range practices.

The board's investigation determined that the BC Wildfire Service acted lawfully in conducting its planned ignition on Aug. 1, 2023, and that its decision to conduct the ignition was reasonable. More importantly, the investigation and subsequent report showed the public exactly how the decision was made, line by line.

WHAT DOES THE FOREST PRACTICES BOARD DO?

Similar to an ombudsman role, the board audits forest practices, investigates complaints, conducts special investigations, issues special reports and reviews determinations made by government related to the provincial *Forest and Range Practices Act* and the *Wildfire Act*.

The *Forest and Range Practices Act* is the primary legislation governing how forest and range activities are conducted on public lands; it focuses on achieving results or strategies that uphold government-set objectives for key resource values such as water, biodiversity, soil, fish habitat and cultural heritage.

Rather than prescribing how to achieve these outcomes, the act emphasizes a results-based model, allowing licensees some flexibility in how they meet objectives. Licensees must prepare and follow operational plans (such as forest stewardship plans) and are subject to compliance inspections and enforcement.

The act aims to balance sustainable resource use with environmental protection and public confidence in land management.

The *Wildfire Act* governs the prevention, control and recovery of wildfires in British Columbia.

DID YOU KNOW?

Currently in its thirtieth year of operations, the Forest Practices Board has published **649** reports: **272** audits; **258** investigations; **63** special reports; and **56** secial investigations.

The British Columbia Forest Practices Board's vision to restore landscape resilience and coexist with fire, from the 2023 report Forest and Fire Management in BC: Toward Landscape Resilience. Image courtesy of the Forest Practices Board.

It sets out the legal responsibilities for individuals and organizations to prevent wildfires, respond appropriately when they occur and rehabilitate areas affected by fire.

The *Wildfire Act* applies to anyone conducting high-risk activities (such as industrial work) and outlines obligations for fire suppression, reporting and hazard abatement. The *Wildfire Act* also grants government powers to fight fires, restrict activities during periods of high risk and recover costs from those found responsible. The *Wildfire Act* plays a critical role in mitigating wildfire impacts on people, property and natural resources across British Columbia.

The Forest Practices Board's work shines a spotlight on the extent to which industry and government are meeting the intent of British Columbia's forest, range and wildfire management practices legislation. Specifically, the board's mission is to serve the public interest as the independent watchdog for sound forest, range and wildfire management practices.

The board's work encourages:

- Sound forest, range and wildfire management practices that instill confidence with the public and Indigenous Peoples;
- Continuous improvements in forest, range and fire stewardship; and
- Fair and equitable application of the *Forest and Range Practices Act* and the *Wildfire Act*.

The board's guiding values and principles center on independence, integrity, excellence, fairness, respect and transparency.

The only organization of its kind in Canada, the board has an arms-length relationship from government, and a mandate to hold both government and the forest industry in British Columbia publicly accountable for forest, range and wildfire management practices, including compliance with the *Wildfire Act*. As an independent watchdog, all the board's findings are published online in publicly accessible reports that undergo rigorous fact checking.

HOW DOES THE BOARD MAKE A DIFFERENCE?

The board's work directly addresses the increasing threat of wildfires and the role that regulated forestry plays in mitigating risks associated with wildfire.

Since 1996, the board has been engaged in wildfire-related matters in one or more of the following ways.

Investigations occur when concerns are brought forth by residents about compliance with the *Wildfire Act* and the appropriateness of government enforcement, such as concerns about the adequacy of prevention / abatement or government response / suppression efforts.

For example, the *Fire Control near Manning Creek* report (2023) involved the board investigating a complaint about whether the BC Wildfire Service complied with the requirements of the *Wildfire Act* related to fire control (a planned ignition) and whether the decision to carry out fire control was reasonable.

Audits involve assessing forest and range protection requirements under the *Wildfire Act*, and include auditing fire preparedness when encountering active operations, auditing compliance with requirements for wildfire hazard assessments, and abatement of hazards following operations.

For example, in the *Audit of Forest Planning and Practices: Cheakamus Community Forest Limited Partnership Community Forest Agreement K3V* report (2022), the board conducted a full scope compliance audit of the Cheakamus Community Forest Limited Partnership near Whistler, which included auditing wildfire protection such as the abatement of fire hazards following timber harvesting. In this case, forest fuel reduction treatments were prescribed, which established assessment schedules and abatement requirements.

Special investigations focus on regional or provincial wildfire-related matters that have

Forest Practices Board investigators measure surface fuels in the Pemberton Valley in British Columbia. Photo courtesy of the Forest Practices Board.

implications for policy decision making, legislation and appropriateness of government enforcement.

For example, in the 2025 special investigation report *Help or Hinder? Aligning Forestry Practices with Wildfire Risk Reduction,* the board examined forestry operations from 2019 until 2022 in wildland-urban interface areas for three natural resource districts across British Columbia: the Sea to Sky from Vancouver north to Pemberton; the Cariboo-Chilcotin in the central interior; and the Peace district in the northeast. The investigation found outdated rules and unclear responsibilities are preventing forestry from becoming a powerful wildfire-defence tool. Despite the challenges, the board observed strong examples of wildfire-conscious forestry where tenure holders completed assessments promptly, followed through with abatement commitments, and used wildfire risk reduction treatments to meet fuel reduction targets – evidence that the necessary knowledge and skills are available.

Based on the findings within *Help or Hinder,* the board issued five recommendations to the BC government that focused on (1) encouraging forest operators to actively reduce wildfire risk; (2) updating legal definitions so municipalities (local governments) are included in the interface; (3) improving co-ordination among government, industry and communities; (4) modernizing hazard assessment guidelines; and (5) incentivizing faster cleanup of logging debris.

Other notable wildfire special investigations include the *Wildfire Act Determinations* report (2022), which examined whether government determinations made under the *Wildfire Act* (circa 2015-2020) are fair, consistent and timely; and the *Fuel Management in the Wildland Urban Interface – Update* report (2015), which involved reviewing progress in managing fuel in the wildland-urban interface, examining if the approach to fuel management was working, and identifying opportunities for improvement.

Special reports provide commentary on trends, findings and broader wildfire management issues

DID YOU KNOW?

More than 1 million British Columbians live in wildland-urban interface areas with high or extreme wildfire risk.

Since 1996, the Forest Practices Board has led:

- Seven complaint investigations specific to wildfire, leading to three recommendations to the British Columbia government.
- Audits involving 305 samples about protection assessment and wildfire hazard abatement; highlighting that there is an increased trend of forest licensees not meeting hazard assessment requirements (~30 per cent of samples in the past five years).
- Eleven special projects (special reports and special investigations) focused on wildfire leading to 38 recommendations. For example, the need for best management plans or standards for assessing the effectiveness of fuel treatments, prescriptions for fuel management, post-fire risk assessments as well as guidelines for fire hazard assessments (a cornerstone of wildfire risk reduction), abatement, and fire resilient stocking standards. Other recommendations focused on the need for coordinated planning, fire prediction modelling, fire management planning (including rehabilitation), incentives for fuel treatments, and addressing policy barriers that limit the use of prescribed burning.

Remnants of the Elephant Hill wildfire near Ashcroft, British Columbia. Photo courtesy of the Forest Practices Board.

to enhance the public's understanding and invite discussion on these matters.

For example, the board's *Forest and Fire Management in BC: Toward Landscape Resilience* (2023) special report helped influence the creation of a Cultural and Prescribed Fire Program and legislative amendments to support cultural burning.

Appeals to the Forest Appeals Commission involve the board challenging certain statutory decisions made by government under the *Wildfire Act* or participating as a third party in an existing appeal. *Wildfire Act* appeals address a range of issues including contraventions, administrative penalties and orders for the recovery of the government's costs of fire control.

In 2021, the board joined a *Wildfire Act* appeal about industrial debris pile burning and subsequent steps to ensure the debris pile fires are extinguished. The board's participation in the appeal focused the standard required to establish a due diligence defence when a person becomes aware that debris pile fires are not fully extinguished several months after conducting the burns.

From 2020 to present, the board has reviewed more than 50 *Wildfire Act* determinations.

While the board does not have the authority to impose penalties (for example, monetary fines), its reports and recommendations have led directly to improved forest practices such as stronger government decision-making processes and better communication among forestry professionals to manage risks to the environment – this includes wildfire risk reduction.

HISTORY OF THE FOREST PRACTICES BOARD

The board provides oversight of forestry, range and wildfire management practices in provincial legislation. The board reports publicly on how well industry and government are meeting the intent of these laws, makes recommendations and shares publicly how industry and government respond.

The board oversees forest and range practices in the province; it was created after the War in the Woods protests.

Circa 1993, the War in the Woods protests occurred in response to industrial logging by MacMillan Bloedel (one of the largest forestry companies at that time) in Clayoquot Sound. With close to 12,000 protestors in Clayoquot Sound, the War in the Woods was one of the largest acts of civil disobedience in Canadian history. In response to the War in the Woods, the BC government introduced the *Forest Practices Code* in 1994, which established the Forest Practices Board. The *Forest Practices Code of British Columbia Act* and 18 regulations (including the Forest Practices Board Regulation) were proclaimed on June 15, 1995.

In 2004, the *Forest Practices Code of British Columbia Act* was replaced by the *Forest and Range Practices Act.* The intention of the legislation is to uphold environmental standards while providing more flexibility to forest licensees to decide how to carry

out on-the-ground practices. In 2005, the *Wildfire Act* was proclaimed.

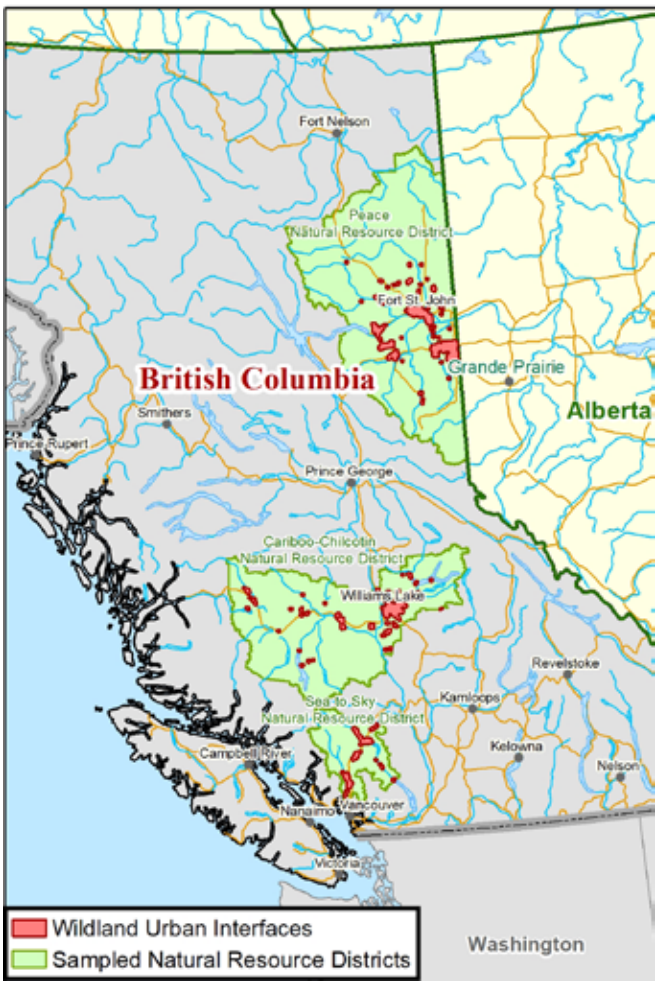
The board has a governance structure that balances independence with accountability. The board consists of a full-time chair, part-time board members and staff who live in communities across the province. Board members work to represent the public interest by interpreting audit and investigation findings to inform recommendations that can shape policy changes. The chair and appointed board members provide strategic direction and are involved as the final decision makers in publishing reports and recommendations. The staff, which includes auditors and investigators, manage an array of projects within the board's mandate. Additional expertise is retained for projects as needed from contract professionals and the academic community.

It is the board's view that the BC government must lead the development and implementation of a vision and action plan (see Figure 1) to restore landscape resilience and enable co-existence with fire.

"Historically, people co-existed with fire on the landscape," the board says in the June 2023 special report, *Forest and Fire Management in BC: Toward Landscape Resilience*.

"Wildfire returned to certain landscapes frequently and, together with Indigenous fire stewardship, played an important role in maintaining resilient ecosystems," the report says. "As a society, we need to get back to a place where fire can do its good work on the landscape again, without the significant risks posed by catastrophic fires in a changing climate."

Proposed by the board in the special report, a vision and action plan are needed to align policies and programs across all levels of government, and to coordinate the broad range of stakeholders and Indigenous rightsholders who have roles to play in enabling and implementing landscape fire management across BC within a changing climate. This includes ensuring that a landscape resilience vision and action plan are co-developed with Indigenous Peoples with clear recognition of Indigenous viewpoints in fire stewardship on the landscape. As summarized from this special report, this paradigm shift requires a massive investment and progress over time to transition land and fire



The geographic scope for the *Help or Hinder? Aligning Forestry Practices with Wildfire Risk Reduction* special investigation report.

management from a reactive to a proactive forward-looking stance. It will require sustained monitoring of the implementation and effectiveness of investments and treatments, and a commitment to adapt and adjust as knowledge about wildfires, climate change, landscape resilience is gained.

As part of sharing the board's story of impact, this article highlights the role of independent watchdogs and the corresponding evidence-based work in investigations and special reports related to wildfires. Recognizing the international scope of the *Wildfire* magazine, readers are invited – particularly wildfire leaders, policy decision makers, wildfire practitioners and forestry professionals – to consider adapting, customizing and scaling a

It starts with better policy and ends with safer, more fire-resilient communities.

-Forest Practices Board

similar independent watchdog governance model in the respective jurisdiction that serves the public interest through increased accountability and transparency related to wildfire management and related forestry practices. To view the board website and for more information visit https://www.bcfpb.ca/.

Thank you to board communications manager Tanner Senko and board general counsel Nathan Murray for valuable feedback and peer review.

Natasha Caverley is an appointed board member of the BC Forest Practices Board in British Columbia, Canada. She is a multi-racial Canadian of Algonquin (Whitney and Area Algonquins), Jamaican and Irish heritage. She holds a B.A. (with distinction) in psychology, M.Ed. in counselling psychology, and PhD in organizational studies from the University of Victoria. Caverley is a Canadian certified counsellor through the Canadian Counselling & Psychotherapy Association who specializes in organizational behaviour, career counselling and development, and multicultural counselling. Caverley has 25 years of experience in research / policy analysis and organizational development focusing on Indigenous fire stewardship and Indigenous approaches to health and wellness.

Keith Atkinson is the BC Forest Practices Board chair. He is a registered professional forester with a Bachelor of Science degree in forestry from the University of British Columbia. For 10 years, Atkinson served as the chief executive officer of the First Nations Forestry Council, where he worked to create opportunities for First Nations in forestry. He has also held positions as the forest resources manager at the Nisga'a Lisims Government and served as a community trustee for the Snuneymuxw First Nation, of which he is a member.

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THE WILDFIRE CRISIS

UNDERLYING BARRIERS THAT IMPEDE MITIGATION

BY JERRY WILLIAMS

*This opinion piece is dedicated to the memory of **Robert (Bob) W. Mutch** (1934-1994), proud smokejumper (1954, 1955), esteemed fire ecologist, friend.*

Difficult and dangerous wildfires can and do occur across a wide variety of fuel types, all over the globe. But many of the worst fires occur in the western United States. Nowhere in the world is firefighting capability and capacity greater, yet the impact of wildfires is becoming worse.

Despite enormous increases in funding for fire fighting, wildfires have become more destructive and more deadly since the United States government organized for wildfire protection in 1905. Civilian fatalities have not been higher since the turn of that last century. Take that in for a moment.

The convergence of uncharacteristically dense biomass, over-accumulated fuels, droughts, extreme weather, and unconstrained growth at the wildland-urban interface have brought the western United States to this crisis.

Since 2000, more than 300 wildfires, each with reported suppression costs of $20 million or more, have burned over the 11 western states. The fires burned out of control until firefighters got some relief in weather or could exploit a break in fuels. These incidents blackened more than 25 million acres and cost more than $13 billion to suppress. As staggering as these costs were, they represented only a small fraction of the hundreds of billions of dollars in property losses, infrastructure destruction, natural resource damages, human health impacts from smoke and other wildfire-related consequences that go mostly unaccounted.

The wildfire crisis in the western United States is defined by the scale and scope of present dangers and future threats. Mega-fires have deep and long-lasting social, economic, and ecological impacts and can no longer be dismissed as aberrations; they require actions that are more far-reaching and more comprehensive than we are accustomed to thinking about.

The crisis is not so much a fire-management crisis as it is a land-management crisis that traces to the deterioration of fire-adapted ecosystems and the vulnerable condition of fire-prone landscapes, including houses. Building resilience in these ecosystems will be key to reducing wildfire severity.

A recent assessment that I conducted with my colleague Matt Panunto, a GIS specialist with the Bureau of Land Management, found that

"NOWHERE IN THE WORLD IS FIREFIGHTING CAPABILITY GREATER—YET NOWHERE ARE WILDFIRES GROWING MORE DESTRUCTIVE."

An open Ponderosa forest of 1897, frequently underburdened by lightning fires or tribal burning, and a changed Ponderosa pine forest circa early 1990s, where fire has been excluded. It is on these dense, dry sites that fire managers and communities have experienced some of the most dangerous, destructive and costly wildfires in the United States.

while many of the worst wildfires in the western United States occurred in perennially dangerous chaparral brushlands, two-thirds of the highest cost incidents were in conifer forests within the natural distribution of Ponderosa pine. A century ago, these open forests were among the most benign in terms of potential wildfire severity. Today, these same forests are choked with laddered, overabundant biomass and over-accumulated fuels. These sites are high risk because they are commonly where people and development are most concentrated in the forested areas of the intermountain western United States.

Changes in species composition, stand structure, and ecological function underpin the wildfire crisis.

The most aggressive firefighting tactics, the largest airtankers, and the most novel re-organizations cannot buck these changes or ignore the ecologies involved. The biggest challenge confronting government is not continuing to build greater, faster firefighting capacity, but instead building a mitigation workforce and reconciling the myriad regulatory requirements, fiscal rules, land management policies, social disincentives, and other factors that impede restoring resilient conditions on fire-adapted, fire-prone landscapes.

Some examples:

1. Under current environmental requirements, wildfires are treated as excepted events; their impacts are presumed to be unavoidable accidents of nature. Although man's influence in predisposing many wildfire outcomes establishes an argument against this exception, the *National Environmental Policy Act* (1970), the *Clean Air Act* (1972), the *Endangered Species Act* (1974), and other regulations do not anticipate, measure, or consider wildfire impacts with respect to the intent of the laws. Consequently, today's wildfire impacts are often imperiling the very values these laws set out to save.

   If this is a crisis, governing environmental regulations need to level the playing field. Proposed mitigation treatments should be weighed against probable wildfire outcomes in the absence of those treatments. A mechanism to comprehensively compile the cumulative impacts from wildfires needs to be established as the means to measure the consequences of avoiding mitigation treatments over the long term.

2. Under current fiscal rules, wildfires are considered emergency events, funded from unlimited reserve accounts. National shared resources (aviation assets, retardant bases, smokejumpers, hotshot crews, incident management teams, tool caches, dispatch centers, fire training facilities) and other firefighting assets are funded off the top, as a priority. A total mobility concept supports the firefighting effort. Resources from anywhere in the United States (and sometimes from the military and other countries) can be brought to bear in dealing with a wildfire emergency.

   On the other hand, mitigation work operates from a constrained budget, often subject to several overhead cost deductions throughout the organization and dependent on whatever local resources can be obtained. Projects requiring the sequencing of selective harvest, understory thinning, and pile burning, followed by lower intensity prescribed burning are especially difficult to budget for. Although US Forest Service researcher Kimberly Davis and her team, in a recent 30-year meta-analysis, found this approach to be the most effective in reducing wildfire severity, it is seldom attempted in the western United States. Sequenced treatments have the added benefits of improving margins of safety, reducing prescribed burn intensities, lowering smoke impacts, and reducing the risks of escape.

   Now, nearly always, a wildfire is a higher priority for funding, skilled personnel, and specialized assets than a prescribed burning or other mitigation work.

   If this is a crisis, federal and state government needs to fully fund restoration work at scales commensurate with the wildfire threat, even if it requires multiple entries to mechanically thin or reduce fuels ahead of prescribed burning. The agencies need to mobilize for prescribed burning opportunities and other mitigation work the same way they now mobilize for wildfire emergencies with a dedicated workforce. It can no longer be "easier"' to fight bad fires than it is to mitigate the hazards that fuel them.

3. The US Forest Service is a functionally oriented organization that operates from a budget arranged on line items. Budgets for wildlife habitat, timber production, watershed management, fuels reduction, and other activities are allocated with an expectation for acres treated or board-

foot volume outputs. There is no line-item allocation or target that measures the health and resilience of fire-adapted ecosystems. Many natural resource objectives – by design or by default – aim for or result in undisturbed conditions. Ironically, under drought conditions, managing for undisturbed conditions in deteriorated fire disturbance regimes often threatens the resource aim.

If this is a crisis, the US Forest Service needs to better align natural-resource objectives with the dynamics of fire-adapted ecosystems and instead of attempting to maximize outputs, aim to optimize outcomes in the context of fire's ecological role. (Across long-needle pine forests in the southern United States, foresters have successfully integrated frequent, low-intensity burning to optimize several goals, including those for wildlife, timber and wildfire protection; it has been a common practice since the early 1930s.)

4. Perhaps no place challenges wildfire protection more than the wildland-urban interface. Roles and responsibilities for protection are often confused or altogether abrogated. There are few incentives for homeowners to take precautions. In many places in the western United States, insurance companies have dropped coverages because they see the risks as too great.

   Protecting lives and private property is almost always the priority, the vulnerability of the wildland-urban interface is told by the property losses and fatalities that continue to climb. Increasingly, this vulnerability has

"THE SOLUTION ISN'T MORE SUPPRESSION—IT'S RESTORATION, RESILIENCE, AND THE COURAGE TO CHANGE HOW WE MANAGE FIRE."

the federal government prioritizing the protection of private property at the expense of public values (air quality, watersheds, critical wildlife habitat, and others). The impacts to these public values are becoming more significant but are mostly overlooked.

If this is a crisis, federal, state, local governments, and homeowners need to reconcile roles and responsibilities for wildfire protection. Government needs to find incentives for private property owners to reduce the flammability potential of their properties and their communities so governments can better redeem their responsibilities for protection of public values.

The costs of mitigation are high, contentious, and not without risk, but total wildfire costs, losses, and damages are much higher and are likely to go higher still.

The wildfire crisis is a systemic problem. Aspirations to mitigate wildfire threats and restore resilience are hamstrung by regulations, fiscal rules, institutional behaviors, behaviors at the wildland-urban interface, and other factors. Until these factors are comprehensively confronted and reconciled by lawmakers and policymakers at all levels of government, it is difficult to see how the wildfire crisis will ever be brought to heel.

If this is a crisis, the nation's political leadership needs to act on the factors that stifle mitigation work. The country's wildland fire leadership needs to help them.

If this is a crisis, the United States needs to organize, staff, and fund for the scale of mitigation work needed much like the wildfire emergency response is now organized, staffed, and funded.

As a nation, the United States is asking much of its firefighters. Wildland firefighters represent the best of a can-do spirit. But there are narrow margins that separate can-do from make-do, and make-do from tragedy. It is time to stop making do, get serious about mitigation, and do wildfire protection right.

To think the United States can meet greater wildfire threats with greater suppression force seems to miss the mark. In 1991, wildland fire researchers Stephen Arno and James Brown introduced the wildfire paradox; it holds that the better we get at putting fires out during moderate years, the worse wildfires become in extreme years. On the mitigation side, there is a corollary: The less we use prescribed fire and other mitigation work when we can, the harder it is to put fires out when we have to. Think Sun Tzu, not Clausewitz, where the least costly, least dangerous, most sustainable wildfire protection approach fights on favorable terms or avoids having to fight at all.

This article was drawn from the keynote address, at invitation, for the Zig Zag Hotshot crew's 50th reunion in Zig Zag, Oregon, May 9-11, 2025.

Jerry Williams' career in the United States Forest Service (1969-2005) spanned the transition between the fire control model and the fire management concept. Williams began as a firefighter and smokejumper; he received his career appointment as a supervisory smokejumper. Following completion of his master's degree in forest fire science (University of Washington, 1979), Williams went on to lead fire management programs at the district, forest, regional, and Washington-office levels. Williams worked toward bringing an ecological basis to fire management policies and programs. Williams retired from the senior executive service as the Forest Service national director of fire and aviation management.


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