Breaking | Fire Detection

FSJA Exclusive with BLAZETAMER380: The detection-suppression paradox

September 16, 2025 Isabelle Crow

Dan Reese, CEO of BLAZETAMER380 discusses scaling fire suppression to match advancements in wildfire detection technology

As wildfire detection technology advances at an unprecedented pace, the question remains: how do agencies scale fire suppression to match these innovations?

This critical question is often overlooked by the tech community. The revolution in wildfire detection, driven by artificial intelligence, advanced communication systems and cutting-edge hardware, has been fueled by the well-financed and business-driven ethos of the tech industry.

> However, the suppression side of the equation has not experienced the same level of innovation or investment. To fully capitalize on the gains made through rapid detection, we must address the suppression gap.
>
> *Dan Reese*

The changing landscape of wildfire management

With the proliferation of megafires and rapidly changing environments, wildfire response, prevention and preparedness have become global priorities. Increasing awareness of the environmental, political and financial impacts of wildfires has pushed the issue to the forefront of public discourse.

In the United States alone, suppression costs, coupled with losses incurred by the public, insurance companies, businesses and all levels of government, now exceed tens of billions of dollars annually. This has spurred a technological revolution aimed at solving the wildfire problem.

Tech companies, eager to contribute, have focused primarily on what they know: detection. The detection component, while critical, is only one part of the solution. Without corresponding advances in suppression capabilities, the benefits of improved detection may not be fully realized.

The evolution of wildfire detection

Historically, wildfire detection relied on human observation. Fire lookouts, stationed atop high points, lived on-site for weeks at a time, armed only with binoculars and an Osborne Fire Finder, a device designed in 1911 to pinpoint fire locations using bearings and distances. Communication was initially limited to radios and later advanced to landlines.

The first major leap in detection came with the advent of cell phones, enabling faster public reporting of fires. By the early 2000s, as megafires increased in frequency and severity, private companies became financially liable for suppression costs.

This liability incentivized investments in persistent 24-hour surveillance systems. Remote cameras, monitored by dispatch centers became a standard tool. However, legal challenges related to liability eventually led camera providers to assume responsibility for oversight and early notification.

Fast forward to 2025- today, artificial intelligence enhances these camera systems, providing real-time fire detection and wireless notifications.

Satellite technology has further revolutionized detection by enabling global monitoring at unprecedented speeds. Companies now deploy satellite arrays specifically designed to detect wildfires, lowering communication costs and improving dissemination of critical data.

The suppression gap

While detection technology has advanced by leaps and bounds, suppression technologies have lagged. Despite significant funding for aviation-based suppression, the slow pace of policy evolution, funding allocation, training and staffing has hindered the adoption of new suppression technologies.

Contrary to popular belief, fire agency budgets are not unlimited. A large portion of suppression costs comes from emergency funds and grants, rather than proactive investments in preparedness. Consequently, cost remains a significant barrier to scaling suppression efforts in line with detection advancements.

The result? While we can now detect fires with remarkable speed and accuracy, the ability to suppress them effectively still depends on an agency's resources and operational capacity. Without adequate resource capacity and altered suppression technologies, the benefits of rapid detection are diminished.

Opportunities for suppression innovation

To bridge the suppression gap, we must focus on improving existing technologies and adopting new approaches. Agencies need to prioritize innovation in suppression, much as the tech community has done for detection. Key strategies include:

Exclusive-use contracts for new technologies

Many suppression technologies are currently deployed on a "call-when-needed" basis, which often delays their application until a fire has already grown out of control. Exclusive-use contracts would ensure the availability of innovative tools and resources when they are most effective – during the early stages of a fire.

Improved air tanker strategies

Air tankers are far more effective when deployed against small, early-stage fires than when combating megafires. Agencies should prioritize the use of suppressants, such as BLAZETAMER380, on aircraft typically limited to carrying water. Use of suppressants will significantly improve the effectiveness of retardant, used to slow fires, by eliminating or significantly reducing the heat from the fire that rapidly degrades retardant.

Advancements in water enhancers (WEs)

Suppression technologies like BLAZETAMER380 have evolved significantly over the past decade making it easy to use and a safe choice.

> BLAZETAMER380 is unlike traditional foams, super absorbent polymers and long-term fire retardants.
>
> *Dan Reese*

BLAZETAMER380 isn't a gel, it's a viscoelastic solution, is very environmentally friendly and improves suppression effectiveness by up to four times compared to water alone.

Why BLAZETAMER380 works: BLAZETAMER380 decreases water's surface tension, enabling better penetration into fuels. Since it is a non-Newtonian fluid, it resists wind shearing and holds together during a drop, evenly coats fuels, resists evaporation and reduces and removes heat.

Its use to eliminate or significantly suppress fire and heat allows it to enhance the effectiveness of long-term fire retardants by preventing heat degradation.

Direct injection: BLAZETAMER380 is one of the only water enhancers that can be direct injected into the current systems used onboard firefighting aircraft.

Tanker Base Operation: The footprint for injection for use on tanker bases is extremely small and inexpensive.

Environmental Concerns: BLAZETAMER380 meets all USFS testing parameters for toxicity, corrosion and suppression specifications. The primary ingredient is used in water treatment plants across the globe. And the amount of concentrate used per gallon is a fraction of that needed by other products, which means a very small chemical footprint compared to other products.

Cost benefits: The cost per gallon is less than a quarter to half of that needed by competing products. Operationally, it makes the water dropping up to four or more times as effective, meaning the operational costs of aircraft are improved four-fold. This translates to smaller fires and the operational and maintenance costs associated with suppression.

Policy and culture shifts

Agencies must adopt a mindset of continuous improvement and be willing to tackle suppression challenges differently than they have for the past century. This includes mandating the use of WEs on water-dropping aircraft, incorporating suppressants into ground-based equipment strategies. Exploring partnerships with private-sector innovators to accelerate the deployment of game-changing technologies.

The path forward

The detection-suppression paradox highlights the need for a balanced approach to wildfire management. While detection capabilities have advanced dramatically, suppression technologies must catch up to ensure that the benefits of early detection are fully realized.

> By embracing innovative suppression tools like BLAZETAMER380, agencies can significantly enhance their response capabilities, contain fires early and prevent them from escalating into megafires.
>
> *Dan Reese*

This shift will require leadership, investment and a commitment to breaking free from outdated practices.

At BLAZETAMER380, we believe that the key to solving the global wildfire challenge lies in the integration of advanced detection with cutting-edge suppression technologies. With continued advocacy, collaboration and innovation, we can create a future where the devastating impacts of wildfires are significantly reduced.

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