

# TWO MORE CHAINS

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## Fruit We Can Reach

### *And the Tricky Transition from Bad Ass to Dumb Ass*

By Travis Dotson

**T**here's been a lot of talk lately about "Unnecessary Risk."

One of the latest pushes on this term has come out of one agency's journey through the dark woods of "Safety" toward the awkward proclamation that breathing matters most. So here we are being advised to take no unnecessary risk.

This charge, like any sourced "from above," triggers massive group griping and a fist-clenching shuffle-dance squawk from more than a few in the field. At this point I do have to wonder if this reaction is more of a conditioned response to "D.C." letterhead than discerning disagreement. We should all admit there is no shortage of merit on either side of this particular episode of "Us vs Them." (For more insights on the "Us vs Them" topic, see this past issue of [Two More Chains](#).)

#### Barroom Theater

As the snow flies and training centers host a variety of symposiums, seminars, and summits for the like-minded, the belt buckle brigade gathers at winter pasture (hotel bars) to practice the alcohol-fueled ritual of oscillating between nostalgia and cynicism.

This is the prime setting to lob rocks at the target-de-jour. In this case, the predictable objection to "Unnecessary Risk" is quite understandable. The seasoned skeptic shouts the faux-question: "And how exactly will the powers-that-be decide if a risk was unnecessary?"

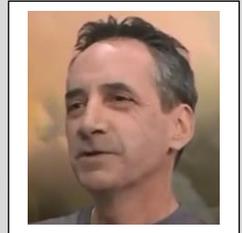
In this perfectly played out yet unrehearsed barroom theater, a comrade takes the cue and exclaims: "That's simple. If something bad happens then you shouldn't have been doing it. Didn't we tell you that no tree is worth dying for!" The cynic is sure that a bad outcome will be the only time necessity is actually measured, and the conclusion is forgone.

This stage performance then continues as the ultimate antagonist is hoisted as a target—complete with cloven-hoof and pitchfork: Lucifer Line Officer. (Hsssss!) (Can you hear the shouting and table pounding?) "YES. It's THEM! They are the ones demanding we stop the fire on bad ground and put out political smokes in the snag patch!"

[Continued on Page 3]

#### Thank You, George Broyles

We would like to thank George Broyles, Fire and Fuels Project Leader for the U.S. Forest Service's National Technology and Development Program, for his significant assistance with this article. George has explored how "Heat, Smoke, Fatigue and Noise" all conspire against wildland firefighters. "They are so common in our work environment, we may not even consider them hazardous," George warns. All of the technical references and resources listed in this article are courtesy of George.



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# GROUND TRUTHS

By Travis Dotson  
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## Experience Builds Bias

Us tree burners love belt buckles and their not so subtle significance. A buckle says: *“This is where I paid my dues.”* How many office pants are held up by a Shot Crew buckle from over a decade ago? I’m not bagging on this; my buckle has wings on it and I rock it proudly. I’m just pointing out the significance we place on experience.

We value experience above all else. To prove to each other how much experience we have, we stand around in circles to tell and retell *“I told ‘em”* stories. You know: *“I told ‘em that fire was comin’ outta there, but they didn’t listen to me!”* Everybody in the circle takes a turn telling their favorite *“I told ‘em story”* and then someone sanctifies the gathering by delivering a well-rehearsed speech on how *“Ya gotta have experience!”*

### Can Experience Be a Liability?

I challenge you to take an objective view.

Is it possible experience has some downsides?

Is there a certain point in time—or certain situations—where experience is more of a liability than an asset? Can your “slides” screw you over?

The answer, of course, is: Yes. And not simply through the lens of *“they got away with bad decisions enough times to make them think they were good.”*

I’m talking about how the slides are colored in the first place. How any experience you have tends to create and solidify bias.

If you spend enough time in any culture you learn the customs, perspectives, and ethos needed to fit in and thrive. We use this knowledge to seek out confirming evidence.

The all-time classic is the Hotshot Crew that hates \_\_\_\_ (fill in the blank: Type 2 Crews, Smokejumpers, Overhead, etc.). A young crewmember learns all the right things to say and think about “The Other.”

Every time this new crewmember interacts with “The Other” they look for evidence to confirm their stereotype—and they find it. This interaction then becomes proof of “The Other’s” lower status. This is basic confirmation bias.

We do a version of this with fires as well—desert fires, mixed-con fires, median fires, etc. In fact, there isn’t much we don’t try to put

in a box as we gain salt points. Before we know it, we know everything about everything.

### The Space Between Slides and Reality

What happens over time is we lose the ability to see what is actually going on in front of us.

We have so much “experience” (built-up bias) that we’re almost incapable of seeing anything other than the slides in our head due to their clarity and attached emotion. To make matters worse, we are less likely to listen to anyone who sees it differently, especially if they have less experience. That’s a trap and-a-half right there!

A well-cited Zen saying goes: *“In the beginner’s mind there are many possibilities; in the expert’s mind there are few.”* This supports the practice of **“beginner’s mind”**—intentionally trying to approach a situation from the view of a beginner in order to minimize preconceptions.

I’m not sure if that’s helpful. I’m just trying to point out that others have thought about this dilemma.

### Here’s What You Should Do

So, what should you do with this mish-mash soup of theory and ideas? Here’s what:

- ✓ Next time you’re circled-up at the staging area trading *“I told ‘em stories”*—**think about what bias you are reinforcing in yourself.** If you hold the view that you’re always the one who saw it coming, how open to listening will you be when you’re the one about to be blindsided?
- ✓ Next time Salty McSalty Dog is holding court about whoever is currently doing it wrong **consider how many years of bias building has gone into what they are currently saying.** Make a real effort to tease-out the useful nuggets and look beyond some of the more blatant labels and type-casting.
- ✓ Teach younger folks about all of this. Let them know how valuable their perspective is. Don’t give into teaching them the stereotypes. **Be the one mentor who insisted that not everything is black and white and that experience is a double-edged sword.**

Dig On, Tool Swingers!

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***“Unnecessary” is nearly impossible to define pre-action,  
and overly easy to declare in hindsight.***

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[Continued from Page 1] A convenient and conventional mark: *Them*. The lack of nuance suits the setting. Eventually, the theming peters out and the herd cycles back to telling time-twisted tales of heroic assignments and deadly days off. The curtain eventually closes as the stragglers stagger off to make ill-advised afterthought phone calls to loved ones they fervently promised to keep in mind.

The actors in this tragedy aren't wrong. We all get it. “Unnecessary” is nearly impossible to define pre-action, and overly easy to declare in hindsight.

**Accepting Risk: There is Always a Reason**

The other blister this talk of unnecessary risk rubs raw is the condescending implication that line going decision-makers are reckless. Yes, it is offensive to imply the concept of “Unnecessary” is novel to a group who makes life and death decisions on a fairly regular basis.

I'm sure the promoters of this well-intentioned campaign would insist there is no assumption that the concept is new, nor is it an insinuation of the current workforce's tendency toward taking on pointless peril. But, intended or not, it comes across that way.

Nobody on the line is accepting risk for no reason. There is always a reason. It's just that the reasons are buried in layers of tradition, self-worth, economics, and every bit of culture-creating minutia one can imagine. “Necessary” is a deep dark hole and we're shouting at each other from opposite edges.

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**Low Hanging Fruit We Can More Easily Discuss**

Everyone owns aspects of this dance around the unwarranted. It's easy to throw rocks at the doubletalk happening on all sides, as if saying one thing and doing another is outlandish. I'm pretty sure hypocrisy shares a birthday with human speech. To put it more plainly: We all have blood on our hands.

Beyond the issue of whose hands are dirtiest, all of this back and forth babble tends to focus on the grandiose and flashiest risks—fast-moving flame fronts and spectacular structure saves. What about some of the not-so-sexy risk we accept? Is there some low hanging fruit we can more easily discuss? Can we leverage some of our cultural values that fully support the notion of reevaluating what we've unconsciously accepted as necessary? Let's try.

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***To put it more plainly: We all have blood on our hands.***

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**We Say We Value “Smarter”**

We've all heard it and most of us have said it more than a few times. It's the classic almost-clever jingle used to admonish the unwise worker. This worker is likely expending unnecessary energy on a task more efficiently accomplished by a process soon to be displayed by the smirking coworker snorting: “*Work smarter not harder!*”

It stings when you're the target those words are aimed at. It's an outright attack on the woodsy intellect so highly valued in our culture. For most of my career, every time that saying was hurled at me I stored it away and narrowed my eyes to scan for unsuspecting others I could fling my fears at.

It never took long to find someone with fewer fire stories long-arming two cubies up the hill. I would saunter alongside them and offer to take the load. As I eventually moved off with the cubies dangling from the tool across my shoulders yoke style I could taste the salt in my chide of “*Work smarter not harder.*” Ahhhh yes, the comforting cocktail of self-righteousness and pride. It feels so good—until you realize what it really is. And so it goes, the cycle of systemic conformity to unspoken ethics rehearsed and carried out in time-honored traditions.

[Continued on Page 4]

## Bad Ass or Dumb Ass?

[Continued from Page 3] The basic theme is this: brute strength is handy, but intelligence matters more. Yeah, it's bad ass to endure a brutal pack out, but you're a dumb ass if you carried anything you didn't need to.

OK, now the meat. If we truly value working smarter, let's apply it to a few other known threats in our work environment.

### 1. Smoke

Prolonged exposure to smoke literally makes you dumber. As CO exposure increases, your ability to think clearly decreases.<sup>1</sup> Being in smoke you don't need to be in is the epitome of not working "smarter." In fact, it is actually working dumber.

Next, we get to have the discussion about what instances we "need" to be in smoke. As fun as that tail chase is, I'm going to move out to the extreme end of the spectrum we have all seen because it's rather common despite its absurdity:

- ❖ Camp placed in a valley where smoke accumulates.
- ❖ A crew strung out "holding" a smoke-choked road when the probability of ignition is near zero.
- ❖ Mopping-up stuff that poses no operational threat.

So first and foremost, exposure to smoke is dangerous because it impairs our capacity to think clearly—something most of us have a hard enough time doing given the complexity of our environment.

The long-term effects of smoke exposure? We have no idea. But chances are they're pretty bad. At the low end, all the smoke we eat puts us at increased risk of respiratory and cardiovascular diseases. Cancer? All that can be said at this point is that wildland fire smoke does include carcinogens.<sup>2</sup>

Here is a finding from "Broyles, G. Wildland Firefighter Smoke Exposure, USDA, Forest Service, 2013": *"In our wildland smoke assessment (650 firefighters, 7,500 hours, 17 states, 80 fires), we found that firefighters exceed safe levels on all fire types for each established short and long-term metric (5-minute, 15-minute, 8-hour)."*

We all know we can do better on this front but we seem to be too dumb to care. Maybe it's the smoke?

### VIDEO Know the Risks of Smoke

*Insights from George  
Broyles*

*Fire and Fuels Project  
Leader, U.S. Forest  
Service National  
Technology and  
Development Program*

<https://youtu.be/OgqTbJSQU>

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***We do lots of things to raise our core body temperature, like hiking ridiculously fast to ridiculously remote locations with ridiculous amounts of weight on our back to do ridiculously demanding physical labor in ridiculously hot environments.***

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### 2. Heat-Related Illness

Heat-Related Illness (HRI) kills wildland firefighters. Ask the families of [Caleb Hamm](#) or [Michelle Smith](#). HRI is a function of our core body temperature. We do lots of things to raise our core body temperature, like hiking ridiculously fast to ridiculously remote locations with ridiculous amounts of weight on our back to do ridiculously demanding physical labor in ridiculously hot environments.

That's a lot of exertion—and a lot of ridiculous.

We don't control all aspects of where the work is, or the conditions present at the worksite. But we do control the level of exertion we put forth getting to and carrying out the work. Pretty basic. [Continued on Page 5]

[Continued from Page 4] The self-induced problem here is the direct correlation between exertion and production: Less Exertion = Less Production (in most cases). Production matters and more is always better because of its effect on reputation. Now we've

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<sup>1</sup>Sources: 1.) [OSHA Carbon Monoxide Poisoning, OSHA Fact Sheet. U.S. Department of Agriculture. \(2002\).](#) 2.) <https://www.cdc.gov/niosh/hhe/reports/pdfs/1998-0173-2782.pdf>. 3.) [U.S. Department of the Interior. \(1992\). Crystalline Silica Primer, Staff, Branch of Industrial Minerals, Special Publication.](#)

<sup>2</sup>Sources: 1.) [Rothman, N. et al., Contribution of occupation and diet to white blood cell polycyclic aromatic hydrocarbon-DNA adducts in wildland firefighters. Cancer Epidemiology, Biomarkers & Prevention, 1993.](#) 2.) [McKenzie, L. et al., Quantification of Major Components Emitted from Smoldering Combustion of Wood, Atmospheric Environment, Vol. 28 No. 20 1994.](#)

stumbled into the deep dark magic of “Identity.” Recognition, belonging, self-worth, acceptance, legacy . . . it all matters. What makes you tic can make you sick.

Now think about “Necessary.” How much of your exertion is necessary? The answer is clearly every last bit of it. What I’d like you to think about is: What is it necessary *for*? Necessary for image? For belonging? For hours? Trust me, I get it. As the kids say: “You Do You.” Just be honest with yourself about what the risks you take are *for*.

### 3. Noise

Noise directly impacts the “C”—you know, the one that goes between “L” and “E.” Noise causes distraction, headaches, and fatigue. It also reduces concentration and slows reaction time.<sup>3</sup>

All this makes a hard job even harder.

Yes, we work in a noisy environment. Pumps, saws, aircraft, heavy equipment. These are obnoxiously loud tools we spend lots of time in close proximity to. Most of us shrug our shoulders in relation to this quagmire. The feeling is something along the lines of: “*Yeah, what are we gonna do? Not work because it’s too loud?*”

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***Hey wildland firefighters, I have some tough news to break to you. It turns out you are, in fact, human. I know the TV news and brightly colored “Thank You Firefighters” signs outside ICP tell you otherwise, but the test results are in and unfortunately, you’re NOT an otherworldly super-being.***

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Well, not exactly. Although I know we could all improve our decision making in this arena.

First of all, noise is no different than any other kind of exposure. Avoiding it is best. Do you need the noise? Do you really need to sit next to the pump because you’re the “operator”?

Cutting to cut, pushing to push, flying to fly, pumping to pump. Those are all-around bad deals, noise or not. Oh look, we’re back to a fresh look at: “Necessary”!

OK, say you need the noise. Fine, don’t be lazy about exposure. Don’t be closer than required. Hearing protection? Let me sort that one out for you. There is no “Bad Ass” in this equation. No ear plugs = Pure Dumb Ass. Not interested? Your call, but long-term you’re looking at problems with anxiety, depression, increased morbidity, and social isolation.<sup>4</sup>

Have fun with that, Dumb Ass.

[Continued on Page 6]

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<sup>3</sup> Sources: [1.\) Cantley, LF, Galusha D, Cullen MR, Dixon-Ernst C, Rabinowitz PM, Neitzel RL, Association between ambient noise exposure, hearing acuity, and risk of acute occupational injury, Scandinavian Journal of work, Environment & Health, 2015; 41\(1\) 75-83.](#) [2.\) Broyles, G, et al., Noise Exposure Among Federal Wildland Firefighters, The Journal of the Acoustical Society of America, Express Letters, 141, 2017.](#)

<sup>4</sup> Source: [Kirchner, D Bruce MD, Evenson, Col Eric MD, Dobie, Robert A. MD, Rabinowitz, Peter MD, Crawford, James MD, Kopke, Richard MD, and Hudson, Warner, T. MD, Occupational Noise-Induced Hearing Loss, JOEM Volume 54, Number 1, January 2012, 106-108.](#)

#### 4. Fatigue

[Continued from Page 5] Hey wildland firefighters, I have some tough news to break to you. It turns out you are, in fact, human. I know the TV news and brightly colored “Thank You Firefighters” signs outside ICP tell you otherwise, but the test results are in and unfortunately, you’re NOT an otherworldly super-being.

Yep, performance deteriorates as you get tired. And you do get tired (that happens to humans). Each of the previously mentioned exposures are compounded when combined with fatigue.

Research across all organizations, including public safety (fire, police, EMS) is clear—the weary are not wary. There is a marked increase in accidents and injuries as fatigue sets in<sup>5</sup>. When we’re tired, we have difficulty processing information and adapting to changing circumstances—fairly important abilities in our world.

What do you think of when you hear 2:1? Hot drip mix? Beer to water? If you’re like me you think of CTRs. That seems to be the only place we actually care about “rest.” Trust me, I know and respect the game we play with hours. I tend not to blame humans for being human—like getting tired OR maximizing the benefit within the incentive structure.

On that note, I will point out once again that the current pay system for a large part of our workforce incentivizes exposure: More H and OT (aka exposure) = More Money. So, the same folks telling us not to take unnecessary risks pay us more if we do. Wait. What? Yeah, don’t get me going on that one because that is a different tirade.

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**Research across all organizations, including public safety (fire, police, EMS) is clear—the weary are not wary.**

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Do whatever you do with timesheets. I’m just suggesting that you put some thought into the *actual rest* you and those you oversee are getting—or not getting. Not the mythical rest on your CTR—the actual down time. Be intentional. Get radical. Support sleep. Hell, pay people for it! Whoops, somehow slipped back onto my soap box there, sorry. Anyway, be brave and get real rest.

#### Triangle:

##### **Put a Pinch of Practical in Your Tactical Pause**

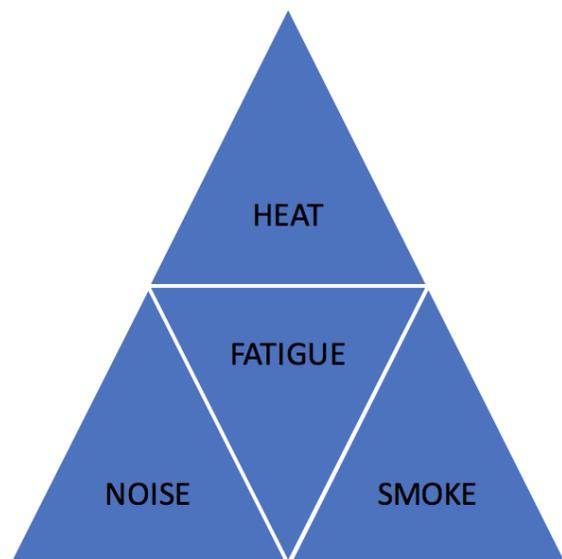
We all know it’s impossible to learn anything if it doesn’t somehow take the form of a triangle, so here you go.

This triangle (courtesy of George Broyles) is heavy and it will smash you. It’s also pretty much invisible because we are so accustomed to its elements. Some of the points are sharp and will cut you down where you stand, others are rather dull, but insidiously incessant.

You want to do some good for yourself and those around you? Put a pinch of practical in your tactical pause. Stop what you’re doing to intentionally:

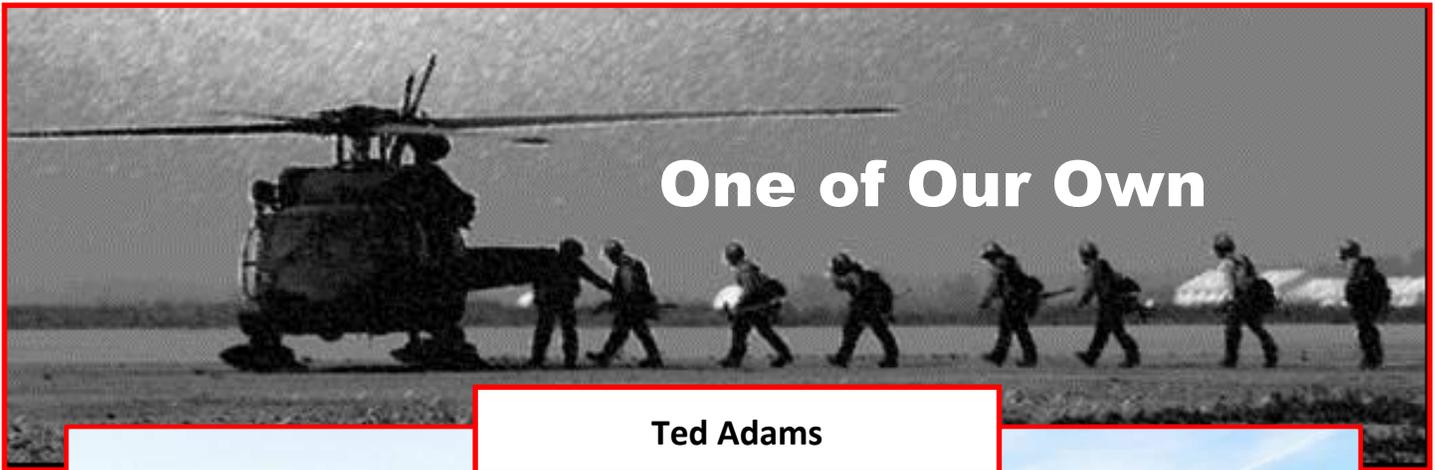
- ❖ Lower core body temperature.
- ❖ Lower heart rate.
- ❖ Relieve fatigue.
- ❖ Get out of the noise.
- ❖ Get out of the smoke.

I know we all have to get in bed with risk to move the dirt that needs to be moved. But Bad Ass or Dumb Ass is an Ass either way. As far as exposure goes, live to reduce & reduce to live. Funny, that kind of sounds like saying: “Don’t take on unnecessary risk.”



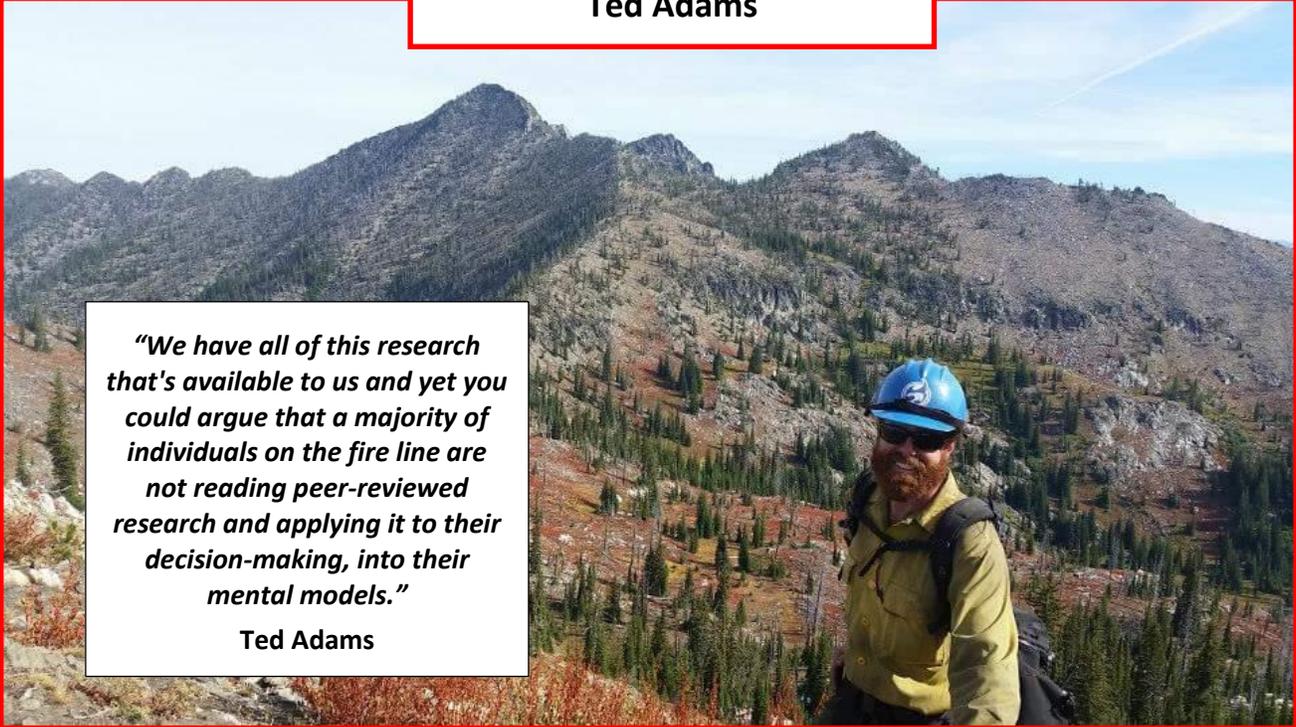
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<sup>5</sup>[Source: [Weaver, MD, Patterson PD, Fabio A, et al. Occupational Environmental Medicine, An observational study of shift length, crew familiarity, and occupational injury and illness in emergency medical services workers, 2015.](#)]



# One of Our Own

**Ted Adams**



***“We have all of this research that’s available to us and yet you could argue that a majority of individuals on the fire line are not reading peer-reviewed research and applying it to their decision-making, into their mental models.”***  
**Ted Adams**

## **Bridging the Gap Between Research and the Field**

**By Alex Viktora and Paul Keller**

In the beginning, Ted Adams explains that “I started as a fire seasonal, just paying for college, got the bug, and decided that fire was something that I would auger into and make a career out of.” Today, Ted says for his “day job” he works as the Assistant Supervisor on the Hells Canyon Wildland Fire Module on Idaho’s Payette National Forest.

“But in the winter time,” he is quick to point out, “I moonlight here and there with different research groups.” The last two winters Ted has partnered with Dr. Bret Butler, Research Scientist at the Missoula Fire Sciences Laboratory, assisting Bret with his ongoing research into how to calculate the increase in fire safety zone sizes when considering slope and wind. [See a link to a video highlighting Bret’s research on this topic on the next page.] Ted also explored other pursuits with Bret, from investigating wildland fire’s impacts on archeological sites to examining communications and how science is communicated/delivered to firefighters in the interagency terrain.

Ted was the lead author with four other fire researchers, including Bret, on a paper on wildland firefighter safety that was published this January in the *International Journal of Wildland Fire* ([https://www.fs.fed.us/rm/pubs\\_journals/2017/rmrs\\_2017\\_adams\\_t001.pdf](https://www.fs.fed.us/rm/pubs_journals/2017/rmrs_2017_adams_t001.pdf)). Their paper’s title: “*Bridging the divide between fire safety research and fighting fire safely: How do we convey research innovation to contribute more effectively to wildland firefighter safety?*”

[Continued on Page 8]



*“The current safety zone guidelines are based on an assumption of: radiant heating only, flat terrain, and no wind. But how many fires do we work on—and are we at risk on—where these are the conditions? The critical factor is that when you have wind and slope involved, in some cases, the energy from the fire can be propagated much farther distances away from the radiant heat than occurs on flat terrain with no wind.”*

*“The most recent research shows that in most cases adequate safety zones and escape routes do not exist. Maybe this suggests we need to change our culture. Is it really worth risking human lives to stop a fire in a fuel type that once stopped will likely just burn in a few years anyway?”*

**Dr. Bret Butler, Research Scientist  
Missoula Fire Sciences Laboratory**

**How do we calculate the increase in safety zone sizes when considering slope and wind?**

**CHECK OUT THIS VIDEO:  
<https://youtu.be/NW8AMbmifOA>**

[Continued from Page 7] Here’s how Ted and his coauthors summarize the intent of this important piece of work:

*“Creating a safe workplace for wildland firefighters has long been at the center of discussion for researchers and practitioners. The goal of wildland fire safety research has been to protect operational firefighters, yet its contributions often fall short of potential because much is getting lost in the translation of peer-reviewed results to potential and intended users. When information that could enhance safety is not adopted by individuals, the potential to improve safety—to decipher the wildland fire physical or social environment and to recognize hazards—is lost. We use firefighter safety zone research as a case study to examine how primary research is, and could be, transferred to fire managers, policy-makers, and firefighters. We apply four core communication theories (diffusion, translation, discourse and media richness) to improve knowledge transfer.”*

Sounds like a worthy, worthwhile, and timely pursuit.

You should also know that Ted holds a bachelor’s degree from the University of Idaho that focused on Environmental Science and Fire Ecology and Management. In addition, he’s pulled down a master’s degree he received under the direction of Dr. Carl Seielstad, Associate Research Professor, Fire/Fuels Program Manager, at the University of Montana.

#### **Big Thoughts and the Utility of Science**

Ted is the kind of guy who’s always having—and pursuing—big thoughts.

For example, when he was working on that paper for the *International Journal of Wildland Fire* he had one that sprung from a conversation he had with a longtime hotshot veteran who had a solid operational fire background. “It was a huge, striking thought,” Ted recalls.

“He and I were discussing the utility of science. He explained how we’re spending thousands of dollars on fire safety research and we’re spending millions putting fires out—but we’re not spending anything on the connection of the two. We’ll spend a million dollars on a new airplane and we’ll grant a few thousand dollars to a fire safety researcher—but we’re not doing anything in between the two.”

Ted says this “big thought” became the impetus for that paper. “This operations guy was talking about the translation and the understanding of science and then making it something that makes firefighters better. Instead of just having the fire research product sit on the shelf, it should help contribute to the knowledge of the fire culture.”

We thought it would be interesting—and super insightful—to sit down with Ted and pick his brain on a wide range of inquiry regarding research and its application to the field. We weren’t disappointed. See for yourself. Here’s a summary of our conversation with this Wildland Fire Module Assistant Supervisor who possesses a sincere and fervent quest for actively pursuing research to help improve the wildland firefighter’s challenging world.

#### **Q. Do we tend to ignore science in the wildland fire service?**

**Ted Adams:**

“I don’t think we ignore it. I think we look at it. We read it. We try to connect to it and if it shows utility, we apply it. I don’t know that everybody can pick up a peer review [scholarly research type] document and make sense out of it and make an application in

the field relevant to themselves. And I think we, as the fire service, have a hard time speaking the language of the Ivory Tower, for lack of a better word, for that peer review standard of research.”

**Q. What do you think drives tough fire line decisions? For instance, where we engage with fire without having safety zones that meet Dr. Bret Butler’s latest standards.**

**Ted Adams:**

“You know, that’s really hard for me to state. I’m not in the head of those decision makers. Especially if you look at the areas where people are engaging with safety zones that don’t stand up to the research side of things. I would assume that people are making those decisions based on their experience, based on their knowledge, based on things that they understand that they see that allows their mental model and their idea of everything that is in front of them to allow it to be acceptable.

For my personal model for decision making in regards to safety zones, I like the one foot in the black approach because those still adhere to Bret’s research.

And then in situations where that isn’t necessarily in place, my personal decision making is based on a combination of all of those things. While I don’t necessarily pull out a ruler and start making measurements on an acceptable safety zone, I do use Bret’s research as a viable check. It’s a check in my mind that I use to evaluate something quickly and effectively, just as a comparison to make sure that my perceived reality of the viability of the safety zone is something that would stand-up next to peer-reviewed research that Bret and his group have worked long and hard to make useful in the field.”

**Q. Here at the LLC we’ve recently had discussions about decision making on the fire line. We wonder if sometimes we’re using physics and math to solve what is fundamentally a cultural set of challenges or a set of sociological pressures. Do you have any thoughts on this front?**

**Ted Adams:**

“So that’s the funny thing about communications and understanding research—its physics and mathematics, it’s a different language. And not everybody speaks this language. So trying to make a lesson in physics relevant to a firefighter who is coming out of high school and might, at best, have taken trigonometry, is difficult. This person isn’t going to understand a lot of the science, the formulas and the physics behind it. And they shouldn’t have to. I therefore think that lumping them into a societal and a cultural shift is, in my mind, comparing apples to oranges.

You have physics and mathematics that say one thing. You have cultures and societal pressures that say another thing. It’s different. You really can think about it in terms of different languages. It’s like the old joke: *‘I was good at math until they added the alphabet.’*”

**Q. Do you think more data will change anyone’s behavior?**

**Ted Adams:**

“More data will not, absolutely not. We have data coming out our ears. But it’s what people do with the data that will change our behaviors. The paper [referenced earlier] that Bret, Sara Brown, Vita Wright, and Anne Black and I put together speaks to that.

It isn’t that we have a shortage of research. We don’t have a shortage of information out there. What we have a shortage of is the translation of that information, in making that information relatable. So, no, I don’t believe data is what we’re lacking.”

**Q. Let’s put on our imaginary thinking caps. Now, let’s say that we gain the ability to translate and communicate the data. Once we gain these capacities, how does our wildland fire world change?**

**Ted Adams:**

“My dream world and my ideal concept is that we take the information and the research and we can turn it into actual viable fire line knowledge. We turn it into something that a person on the fire line can look at, can understand, and can apply it to their situation as one more piece of information and knowledge in their wheelhouse to allow them to make a critical decision.

It’s something that I wrestle with personally. Trying to combine both experience and education to make a viable set of decisions in everything that I do on the fire line. The ideal concept is that we start to use the research that’s out there—‘we’ as a culture, as an organization, and as a group of firefighters.

Ideally, we learn to understand the research and use it instead of reading it and putting it to the side. We pick up what’s relevant. We analyze it critically. We say this is meaningful to me. It’s meaningful because of these reasons and then we go forward and start to apply it in the field.”

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**“It isn’t that we have a shortage of research. We don’t have a shortage of information out there. What we have a shortage of is the translation of that information, in making that information relatable.”**

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**Q. What evidence is out there that the field isn't already engaging with the available science/research?**

**Ted Adams:**

"This is a soapbox that I don't know if I should actually get into. But my personal thought is that we have all of this research that's available to us and yet you could argue that a majority of individuals on the fire line are not reading peer-reviewed research and applying it to their decision-making, into their mental models.

We spend thousands of dollars on research that is motivated in fire safety. These researchers are not doing it just to pull-in grants, they're doing it to keep firefighters safe.

Their intent and their goal is to use their skillset to increase the safety of firefighters on the line whether that be District folk, whether that be Hotshots, it doesn't matter. Their goal is to create something that will someday save someone's life or prevent them from being burned over.

What I see, as an organization, is that we do not change our behaviors until someone gets hurt or someone dies.

It's really hard for me to point to an instance in which research was motivated purely behind fire safety, went through the rigmarole, stood up to muster, and was actually widely accepted. Yet we have countless examples of lessons taken from tragedy events that become widely adopted.

In my mind, it's striking to me that it takes a death or a huge injury for us to change our behavior when we have all this knowledge available to us. I'm not saying that research has all the answers by any means. But they [the fire researchers] might have a couple that we're not even looking into."

*Recently at the LLC we've also been wrestling with the words/concepts of "risk enabling" and "risk mitigating." Sometimes it seems like for wildland firefighters a mitigation can quickly become just another risk enabler. For instance: Let's say we've got a fire burning in tough country. We get everybody around the hood of a truck and we've got a Strategic Operational Planner (SOPL) or a Long Term Analyst (LTAN) who can wow us with the latest and greatest software that might inform operational strategies and tactics. "The models say 'X,' therefore we should do 'Y.'" Based on this, do you see the potential for science—fire spread models in this case—to become just another "risk enabler"?*

**Ted Adams:**

"This is the silly cartoon or highly dramatic TV show where the researcher creates something out of the best idea of their heart and the military takes it and turns it into a weapon. I don't know about research becoming an enabler. And I don't think that I can speak to that because research is as varied as the scientist who creates it.

That's why it takes critical thought. It takes a critical audience of the fire community to look at these research papers that are coming out and look at the standards of research that went into the product that's produced.

I think that it's just like reading a book. You and I can pick up a book and we can get entirely different messages out of it—one enabling and one mitigating. It's up to interpretation. It's up to how people decide to use it. It's up to how the researcher phrases it. It's up to how the translators convey it into the field.

I think there's potential for enabling risk, but I don't know if there's intent behind any of that. I think researchers are producing research. And most of them do so very rigorously and steeped in worst-case scenarios because of the fact that it is life safety. They lean so far to the safety side that it would be very hard for fire safety research to become a risk enabler in my mind."

**Q. OK, last question. Have you ever seen a Yeti?**

**Ted Adams:**

"Well, I do live in central Idaho. There have been crew members who have sworn to God that living here, they've seen them. But I have not personally witnessed one—aside from the bedraggled people coming out of their sleeping bags on Day 14."

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**"What I see, as an organization, is that we do not change our behaviors until someone gets hurt or someone dies."**

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# Your **FEEDBACK**

*This page features unsolicited input from our readers. The independent content on this page does not necessarily reflect the opinions of the Two More Chains staff.*



**[Editor's Note:** We want to thank Beth Rands for enlightening us to an oversight that we made in our last *Two More Chains* issue. We appreciate Beth clarifying this important misperception for us. And, as you will see, the personal insights that Beth shares here are super valuable for us all.]

## **Our Last Issue Diminished What Wildland Firefighters Experience**

Thank you for jump starting the conversation on suicide and mental health in the wildland fire community in the [Spring Issue](#) of *Two More Chains*. It's an important topic. We need to have the courage to talk about it and to support each other.

While the issue had many good resources and accounts, there's one section I'm afraid might discourage wildland firefighters from believing "normal" parts of their job can have significant effects, or might discourage wildland fire folks from using currently available resources and peer support technically created for other types of first responders. This is the excerpt from *Two More Chains* that I'm referring to:

### ***"Structure Firefighters Encounter Different Situations***

*Why all the hair splitting? Isn't a firefighter a firefighter? Not so fast! Each segment of the firefighting workforce is exposed to unique stressors and the potential for trauma. A busy structure department likely responds to as many medical situations as they do fires. Many of these folks see things that those in the purely wildland fire realm don't encounter on their incidents: the effects of drugs, violence, as well as massive physical (and emotional) trauma associated with car crashes, just to name a few. Suffice it to say, these are situations that wildland firefighters have most likely never seen and never will."*

### ***Responding to traumatic incidents is ops normal for us.***

In an otherwise fantastic issue, this statement diminishes what wildland firefighters experience. Because we don't encounter drugs and violence (much), does not mean that we haven't experienced trauma, or that other first responders won't understand our challenges.

Maybe the most difficult thing about getting help is admitting when you need it, and that you *have* experienced trauma, that you aren't weak because of it, and you aren't the only one. What is "normal" for wildland firefighters is extraordinary for the average citizen, even in the eyes of urban first-responders or members of the military. Responding to traumatic incidents is ops normal for us.

An event that we might actually count as traumatic is simply written off as a bad day on the job. Especially in areas that have a high number of all-risk responses, wildland firefighters may in fact experience far more than wildland fires with a high pucker factor, or neighborhoods disintegrating around them, as if that isn't enough.

### ***We don't need a South Canyon for our points to add up.***

#### **How We Perceive and Define Trauma**

Through my own recognition and treatment of delayed PTSD (which apparently is a thing), the absolute most difficult thing is accepting it. After all, I've never been directly involved in a Yarnell or a South Canyon.

In preparation for EMDR (an integrative psychotherapy approach that has been extensively researched and proven effective for the treatment of trauma), my counselor had me list "big T" and "little t" events—"T/t" representing trauma. I proceeded to rattle off a long list of events from the last 20 years. When I was done, she said: "OK, now what are the little t's?" I was sure that I had listed several.

Remembering a call to an especially nasty car wreck that forever left the combined smell of blood, diesel and cheap beer in my brain, I said: "Well, that car wreck is a little t. My life wasn't at risk, and those guys were already dead." Just a memorable day at work. As far as I knew, this was a "little t" experience.

Or the time a tree fell across the fire line, landing exactly where I'd been working before I walked a few feet to untangle a hose. My coworkers called out, thinking I'd been hit. Startling, but not really a "big T" on my wildland firefighter scale. I mean, who *hasn't* had that happen? Kim Lightley wisely pointed out to me: "Are we on a point scale?" Meaning, don't diminish what you have experienced. We don't need a South Canyon for our points to add up.

#### **Other Branches of Emergency Services Can Help Us**

As we start conversations and build resources of our own within the wildland fire community, we can and should accept the

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assistance of organizations that help structural firefighters, law enforcement, and military.

While the jobs and experiences may not be exactly the same, we can all relate to each other. That’s because we all have jobs that are not normal, and on-the-job trauma is a commonality. I have found that these two organizations are much farther down the road in helping employees: <http://www.realwarriors.net/> and <http://americanaddictioncenters.org/firefighters-first-responders/>.

Talking to a military doctor helped me figure out and start to accept what was going on with me. He is a prior infantry Marine and has seen some bad stuff. He said: *“I haven’t experienced what you have experienced, but I can tell you, having a neighborhood vaporize around you is NOT normal.”* Valid point. It was a wakeup call for me to have a military member affirm what I was experiencing. I still haven’t quite accepted it. But it’s a start, and

proof positive that other branches of emergency services can do us a lot of good.

**In Honor of Joe George**

Finally, I’d be remiss on this topic without a shout-out to my good friend Joe George. Joe was a wildland firefighter who died by suicide in 2014. Joe suffered an on-the-job injury that wound-up being career ending. This started a downward spiral that sadly culminated in his untimely death.

I didn’t see it coming. And while I logically know I probably could not have been the deciding factor in Joe’s life or death, I still feel the guilt. For the honor of Joe and the people who loved him, and for others like him, we must—and will—do better.

**Beth Rands**

Fire Program Specialist  
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*Two More Chains*, published quarterly by the Wildland Fire Lessons Learned Center, is dedicated to sharing information with wildland firefighters. For story tips, questions, or comments, please contact: Paul Keller, [prkeller@fs.fed.us](mailto:prkeller@fs.fed.us), 503-622-4861.

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