IAWF Issues Paper

Changes in fire suppression tactics and strategies

Background

Forecasters continue to predict drying and warming trends across places in the world where wildfire continues to be a problem. Fire seasons lengthen, fire affected landscape pushes into values at risk, and air quality is compromised. The purpose of this paper is to stimulate discussion among IAWF membership about new ways to protect values and fight big fire, including the consideration of suppression strategies and tactics.

KEY QUESTIONS FOR IAWF MEMBERSHIP

In some cases, we have gathered some initial responses to the questions posed below based on input from the IAWF review of the issue and related topics, but we recognize that there are varying viewpoints and perspectives. In other cases, the slate is blank. In all cases we hope to provoke ideas and insights as part of a broader discussion among the international wildfire community.

Contribute your perspective by emailing your thoughts to issuepapers@iawfonline.org with "suppression" in the subject line.

Tactics of Fighting Wildland Fire.

1) *What are the tactical options that are under-utilized when we think about getting more fire on the landscape?*

Response: Rapid detection and initial attack with sufficient weight of attack are increasingly important. Are we making the best use of satellites to tell us where fires are and how best to access them?

2) *Suppression is successful 98% of time. The things that make us successful 98% of the time are not useful the other 2% of the time. More resources are not going to help in this 2%. What strategies and tactics are needed for this 2% and are we doing a good job training the current and next generation to recognize when it is happening and how to respond to it?*

Response: Notwithstanding this, the Standard Fire Order # 10 says "Fight fire aggressively, having provided for safety first". Maybe there needs to be a new Standard Fire Order that says something like: In extreme fire behaviour, you best efforts may be ineffective; stepping back and telling people to get out of harm's way might be the most effective strategy.

Response: Large and Very Large Air Tankers are now common on large fires. Do we really understand how effective they are? What is their return on investment and do we truly evaluate their effectiveness? What are their limits? What does this mean to crews who are on the ground? Are the crews supporting aircraft? Or is it the other way around?

3) *Because of more extreme events and more structures in areas, you can't do direct perimeter control. What are our other options?*

Response: The idea that we need to do perimeter control on every fire is incorrect. We actually have a wide tactical response spectrum and only deal with a small portion of that spectrum. These aren't alternatives, because they have always been there. We tend to first think about perimeter control, but increasingly we won't have enough resources to do that now. We need to look at other tactical responses - partial control, area management, herding/turning the fire, checking it, evacuations, etc.

Managing Fire across the Landscape

4) *If we want to manage fire across the landscape, how do we reconcile competing land management missions between different jurisdictions and priorities – such as provincial/regional and local? Public and private? County/state/federal (in the US)? Town and village, agricultural and conservation?*

Response: In the United States, land use missions at the state level conflict with federal land missions, and federal agencies are also in conflict. For instance, a federal land management agency may want to increase prescribed burning, however this conflicts with federal air quality mandates. We need to reconcile or acknowledge these differences if we want to manage fire across the landscape.

Response: In the US the emphasis is on risk management. There is an increased focus by federal agencies to put more fire on the landscape and this increases the tension between agencies with different missions (federal, state and local each with a different emphasis on fighting fire more aggressively, directly than other agencies).

Response: Australia also sees tensions among agencies, especially when it comes to health and the environment. When conflict in management objectives occurs, control priorities become an important framework to resolve those issues. The primacy of life is always first priority.

5) *With severe drought, we are seeing boreal forests succumb to fire. This results in large peat fires (Germany, United Kingdom, Sweden, Canada, Russia). Are our peat firefighting techniques proven? Do we need more research there?*

6) *If resources are more limited given current directions, what does that mean for strategy and tactics? Should we be thinking about what we can accomplish differently in a more resource constrained world?*

Response: When the US is at Priority Level 5, resources are scarce. This means we engage in more point protection of values at risk and area protection, which limits where all out suppression activity can take place. This creates a vicious cycle of an ever escalating fire situation that puts responders back on their heels and at risk. Decision space is limited based on resource availability, which means strategy and tactics are therefore limited. Is the public aware of the decreased funding to fire science and research?

Politics and Fire

7) *How do you establish management objective that meet the multiple expectations we have for a fire (ecosystems, local populations, air quality, future fire risk)?*

Response: Suppression is very reactive tactically without thinking about the strategic implications at a larger scale. We may need to sacrifice some houses for other values at risk that are actually more valuable. We need to think about the problem in a different way. Should we ignore the 10 houses to protect the other 1000? We race to protect the house rather than find the head of the fire. The instinct of first responders is to protect homes from burning. But we can't prove the counter-factual of letting 10 houses go in order to protect larger number of VAR. This is very challenging politically.

8) *What metrics could we use to reflect changing fire goals in management? How do you measure success? How do you measure the positive impact of suppression? # of houses saved vs. lost, # acres restored vs. lost, # of people who went home safe vs. injured, etc… ?*

Response: Fire success metrics are focusing on the wrong thing. Response time to fire is a measurement in parts of Australia rather than looking at the longer-term risk and how it should be managed.

Response: Percent containment is not a good metric. Percent of fire contained before five hectares. Wildfire use would actually mean that number would go down and it would be positive. We need to change the metrics to reflect new goals and attention. We measure number of acres burned rather than severity of the acres burned. We need an impact measure that looks at severity, water yield and quality, carbon storage, ecosystem functions disrupted or not acres burned.

Response: What are the expectations of governments, the community and industry (including the insurance industry) for success? How are we able to influence these expectations? In Australia there is a lot of buzz around the term "resilience". But what does

a resilient person / household, community and business look like? What do we need to do to strengthen community resilience?

Response: Globally over the last half a century we have seen that successful suppression also perpetuates the fuel problem and therefore makes future fires more severe and harder to control. Possibly better measure would be around what has been saved and how overall risk has decrease as a result of fire management including suppression activities.

Suppression Efforts in the WUI

9) *How should we be thinking of fire fighting in and outside the WUI?*

Response: In Australia (and perhaps in US and Canada) there needs to be greater recognition of land management agencies. As we witnessed in Greece, the National Forest Service lost control of forest firefighting to the Hellenic (Urban) fire service. In some cases, urbanised fire services do not have the appropriate skills, techniques, supervision or equipment to tackle large fast-moving wildfires. Evidence of this can be seen in many parts of the globe, which may include Australia, Russia, Spain, Greece and Portugal.

Bringing up The Next Generation of Leaders

10) *How do we get smarter faster in training the next generation of leaders?*

Response: We are experiencing a skills deficit. There is a loss of skills through retirements and monetary losses. We have rigid systems to train Type 1 commanders (takes 30 years). Experience is not necessarily a good indicator of ability. We need more capable people. We have a very linear system. If government freezes hiring then it creates a gap in your personnel curve in the future.

Response: We need to acknowledge that 98% of wildfires are dealt with very well using true, tried and tested means. So it is important to recognise long accepted methods and keep teaching / practicing them. We need to promote excellence in trail construction; dry firefighting; back-burning and burning out; use of heavy plant and hoselay drills. We also need to recognize fire weather and fire regimes are changing in many parts of the world, largely due to changes in land cover and climate.

Response: I'm staggered that, with so much technology and robotics, that we haven't seen "robo-firefighters". We need to step up our efforts to take human firefighters out of harm's way. Robotics should help.

Response: Are we dealing with Lessons and Lessons Learned adequately? How do we ensure that a lesson identified in northern Spain is picked up and learned by the fire manager in Scotland, Canada, Indonesia, China and New Zealand? Is there scope for a global knowledge hub?

Response: Should we consider creating more opportunities for people to be fast-tracked trough providing opportunities in alternative northern-southern hemisphere seasons? As there is always busy season somewhere on the Globe that would potentially allow us to provide '30-year experience' in 10 to 15 years.

11) *What are the workforce implications of having a fire year instead of a fire season?*

Response: As the "wildfire problem" increases across the globe, we need to get better and faster at responding firefighters and incident management resources from one hemisphere to another. The downside is that, with increasing length of fire seasons, there may develop an overlap where there is competition for resources (boots on the ground, incident personnel and scarce resources such as aircraft). This might present an increasing problem of firefighter fatigue and burn-out (pardon the pun) and longer-term issues regarding recruitment of volunteer and community-based resources where ongoing demands are seen as excessive.

More information

Headwaters Economics. "Summary: Wildfire Costs, New Development, and Rising Temperatures." April 2016.https://headwaterseconomics.org/wildfire/fire-research-summary/

National Interagency Fire Center. "Federal Firefighting Costs (Suppression Only)." https://www.nifc.gov/fireInfo/fireInfo_documents/SuppCosts.pdf .

Karin L. Riley, Matthew P. Thompson, Joe H. Scott and Julie W. Gilbertson-Day. "A Model-Based Framework to Evaluate Alternative Wildfire Suppression Strategies. "*Resources/2018, /7*, 4; doi:10.3390/resources7010004 www.mdpi.com/journal/resources . https://www.fs.fed.us/rm/pubs_journals/2018/rmrs_2018_riley_k001.pdf .

Zimmerman, Thomas. "President's Desk: Improving-wildland-fire-management-strategies." Wildfire Magazine, February 2016. https://www.iawfonline.org/article/improving-wildland-fire-management-strategies/ .